Materials, Systems and Structures in Civil Engineering 2016 – Post event description of MSSCE2016 and the RILEM week 2016

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Materials, Systems and Structures in Civil Engineering 2016

- Post event description of MSSCE2016 and the RILEM week 2016

Technical University of Denmark (DTU), Lyngby, 15 August – 29 August 2016
Event chair: Ole Mejlhede Jensen

October 2016

Contents

Cover: *The event help-desk manned by Anisa Sheriff and Julie Smed Hansen – supported by Sabina Askholm Larsen – prepares for arrival and registration of the participants. (Credit: Simon Klein-Knudsen).*

Overview of MSSCE2016

Summary

The event Materials, Systems and Structures in Civil Engineering 2016, MSSCE2016, was held in Lyngby, Denmark at the campus of the Technical University of Denmark 15-29 August 2016. The event consisted of a series of parallel and consecutive conference and doctoral course segments on different topics and a number of scientific and administrative meetings. Additionally technical tours were offered to the participants. Each of these event categories are described in details in separate sections of this report.

Each conference or doctoral course segment functioned in principle as an individual event, but they also had relations to other segments of the full event. In particular there was thematic links between specific doctoral courses and specific conference segments. Each conference and doctoral course segment was organized by a person from the Technical University of Denmark, DTU Civil Engineering or the Danish Technological Institute, DTI and typically involved cooperation with one or more international key-persons and possibly an international organization.

MSSCE2016 included the RILEM week 2016, which is the main annual event of the scientific organization RILEM. In addition to the scientific support from RILEM, MSSCE2016 was supported scientifically and financially by several other organizations and private foundations.

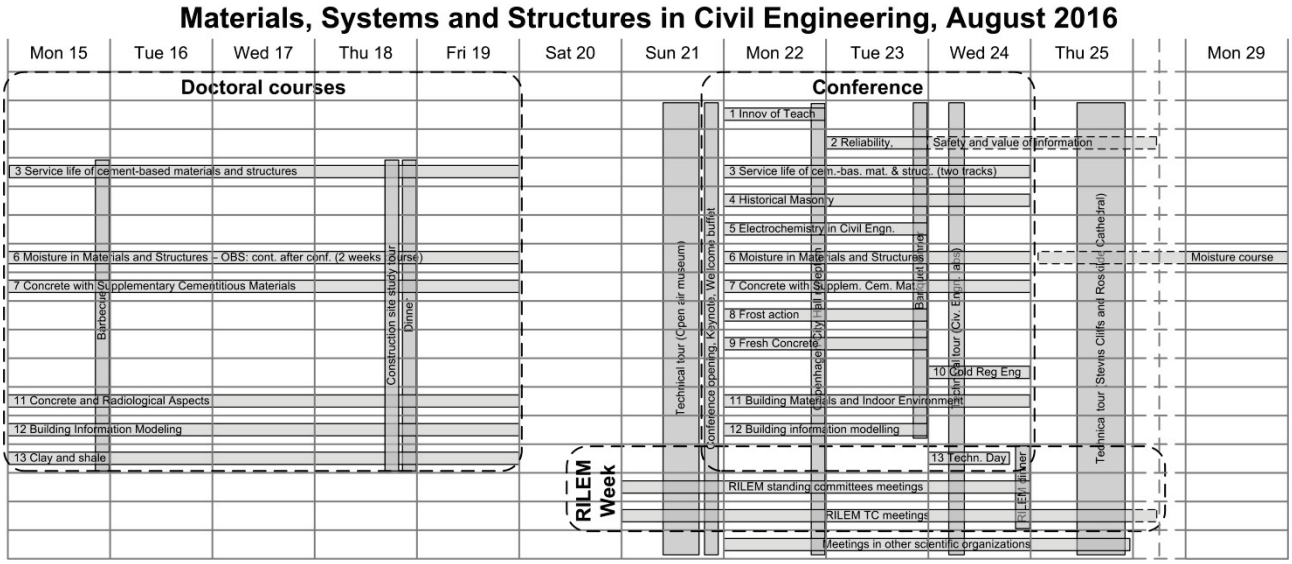

Figure 1. MSSCE2016 was a relatively complex event composed of many different, but yet related, parallel and consecutive parts. In particular MSSCE2016 included doctoral courses, conference segments and meetings in scientific organizations, as well as it hosted the 70th RILEM week.

MSSCE2016 was considered very successful as it fulfilled its main aims. These included having an event with a scientifically wide scope, but still of high scientific quality, and to have a tight integration of scientific and educational elements.

Approximately 570 persons coming from about 55 different countries were scientifically involved in the event.

Involvement of RILEM and other scientific organizations

MSSCE2016 included the yearly main event of RILEM, the RILEM week. RILEM is an international scientific organization in the area of construction materials, systems and structures. RILEM has about 1300 members from 70 countries. RILEM was established in 1947 and is a framework for progress of science through conferences, educational courses, scientific publications, work in technical committees etc. The RILEM week takes place in different locations each year: 2009: Haifa (Israel), 2010: Aachen (Germany), 2011: Hong Kong (China), 2012: Cape Town (South Africa), 2013: Paris (France), 2014: Sao Paulo (Brazil), 2015: Melbourne (Australia). The RILEM week consists of several parts, notably:

1) A series of administrative meetings in the standing committees and organs of RILEM.
2) Meetings in some of the approximately 40 RILEM Technical Committees.
3) Presentations by some of the RILEM Technical Committees and RILEM medalists (Technical day).

The RILEM week is organized in parallel to an international conference – in the present case the conference under MSSCE2016. In principle there is no firm link between the conference and the RILEM week activities apart from the conference being scientifically sponsored by RILEM. For MSSCE2016 considerable, new elements for RILEM weeks were introduced, in particular the conference was made multi-focus, and doctoral courses were included.

Figure 2. Johan Vyncke, President of RILEM – supervised by a focused event chair and Honorary President Ole Mejlhede Jensen – formally marks the opening of the 70th RILEM week by initiating environmentally clean conversion of oxyhydrogen to water.

The chairs of each doctoral course and conference segment were free to involve other scientific organizations than RILEM in their segments, and these scientific organizations were also encouraged to have administrative and technical meetings during MSSCE2016. Other scientific organizations with various degrees of involvement in MSSCE2016 were COST (the European Cooperation in Science and technology), the International Association of Building Physics, and buildingSMART.

MSSCE2016 main figures

Approximately 590 persons were involved in MSSCE2016. Some of these were not registered in the event management system, but instead registered separately (20-25 persons on RILEM scientific meetings, 9 teachers on the doctoral courses, 62 persons on COST meetings). Excluding accompanying persons and DTU Civil Engineering administrative personnel (conference coordinators) registered in the event management system, in total about 570 persons participated scientifically in the event.

Apart from the technical tours, MSSCE2016 consisted of four main event categories with a total of approximately 900 "participant events":

1) Conference, approx. 390 participants in 13 segments.
2) Doctoral courses, 106 participants in 6 courses.
3) Scientific committee meetings, approx. 270 participants who took part in one or more of the 18 different meetings, each with a duration between a couple of hours up to 2 days. Some individuals participated in up to 9 different meetings.
4) Organizational, administrative meetings, approx. 130 participants who took part in one or more of the 18 different meetings, each with a duration between a couple of hours up to 2 days. Some individuals participated in up to 6 different meetings.

About half the participants took part in only one of these different main event categories, but the other half were involved in two, three or even four of these. Among the doctoral course participants, approximately 50% also participated in the conference. All event categories had participants from all continents.

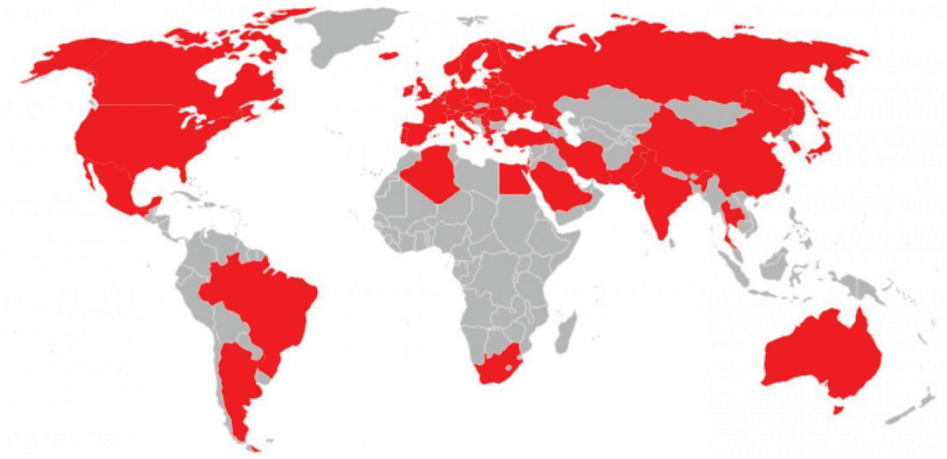

Figure 3. The participants represented approximately 55 different countries from essentially all over the world, though 80% of the participants came from Europe.

From the conference, 9 sets of printed proceedings (one of these is in two volumes) have been published and 2 more are in the editorial process. The proceedings have been made freely downloadable on the MSSCE2016 website. The proceedings that have been printed so far contain 267 papers and 12 abstracts.

Planning of the event was under way for 5 years. Its organization was internally pre-approved at DTU Civil Engineering in September 2011, by RILEM in March 2012 and formally approved at the Cape Town RILEM General Council meeting in September 2012.

In round figures the total event budget was 5.000.000 DKK if expenses such as room rent and event organizational wages were to be included. However very significant indirect support was allocated by a number of sponsors and the event revenue was approximately 2.500.000 DKK.

Financial Sponsors

As mentioned above MSSCE2016 was scientifically sponsored – i.e. a non-financial "seal of approval" of the scientific quality of the event – by several scientific organizations with various degrees of involvement in MSSCE2016: RILEM, COST, the International Association of Building Physics, and buildingSMART.

Support which can be characterized as "financial" came from several sources. In some cases it consisted in a direct, cash grant, unrestricted in its use for the full event. In other cases the grant was limited e.g. to certain segments of the event, or the support was more indirect in the form of for example free services or manpower. The following list of financial sponsors does not distinguish between these different forms:

Knud Højgaards Fond, Larsen & Nielsen Fonden, Ingeborg og Leo Dannins Legat for Videnskabelig Forskning, Direktør Ib Henriksens fond, Kalk- og Teglværksforeningen, Copenhagen City Council, Wonderful Copenhagen, COST, The Technical University of Denmark, the Danish Technological Institute.

In all cases the involvement by the sponsors in MSSCE2016 was non-commercial, and likewise the event was free from commercialism: There was no commercial exhibition booths, no display of commercial logos etc.

Aims and evaluation

Every institution and organization involved in MSSCE2016 (RILEM, DTU Civil Engineering etc.) have had their specific aims with the event. From the point of view of the event organization the stated goals were to have an event which includes the following characteristics:
- Scientific excellence.
- Wide in scope by broadly reaching out to all civil engineering disciplines.
- Broad international participation.
- Foster a strong integration of research education.
- Significant number of participants.

Concerning the scientific level general scientific sponsorship to the full event was granted by RILEM; it was a RILEM event. Additionally, several RILEM TCs and COST actions granted scientific sponsorship to specific conference and doctoral course segments. 70% of the published papers and 80% of the doctoral courses were covered by this additional scientific sponsorship. All papers were anonymously peer-reviewed and thereby fulfilled standards for the highest scientific level.

During planning of an event there are some conflicting elements between having a wide scope, a significant number of participants, international participation and scientific excellence. For MSSCE2016 this dilemma was overcome by the segmented, “multi-focus” structure; each segment was focused and could thereby keep the highest scientific level and attract international experts, and meanwhile the sum of segments ensured a high attendance level. High attendance is a motivator for everyone since it increases visibility. The RILEM TC participation was the highest during a RILEM week. As a further indicator of the broad scope, all sections at DTU Civil Engineering were involved in the Organization of MSSCE2016.

The segmented structure and the multiple activities were by no means a “separating factor”, on the contrary it ensured “added value” for the participants. During the program planning submitted papers were transferred between segments and during the event some scientists participated in and made presentations in several segments. As mentioned about half the participants took part in more than one event activity and notably half the doctoral course participants also took part in the conference. Clearly there was a very good integration between the different parts of MSSCE2016, and the variety of activities has surely promoted participation.

As documented later in this report a separate evaluation of the doctoral courses were made by the participants and these were clearly successful.

In summary, MSSCE2016 was very successful and fulfilled its main aims.

Conference

Overview

The conference part of MSSCE2016 involved several segments on different topics. Each segment was organized by an academic employee from DTU Civil Engineering or from the Danish Technological Institute, DTI, in cooperation with a number of co-organizers from other institutions primarily outside Denmark. A total of 390 persons participated in one or more of the 13 segments. The following 13 conference segments with a total of 346 presentations took place:

Conference segment title (shorthand in **bold**)	Presentations
*Innovation of **Teaching** in Materials and Structures*	6
***Reliability**, Safety and Value of Information*	7 (+23 COST TU1402)
***Service Life** of Cement-Based Materials and Structures*	80 (two tracks, incl. COST TU1404)
*Historical **Masonry***	32
***Electrochemistry** in Civil Engineering*	23
***Moisture** in Materials and Structures*	38
*Concrete with Supplementary Cementitious Materials **(SCM)***	41 (+5 joint with COST TU1301)
***Frost** Action in Concrete*	25
Fresh Concrete	23
***Cold Region** Engineering*	12
*Building Materials and **Indoor** Environment*	8 (+9 joint with COST TU1301)
***BIM** in Civil Engineering*	13
*RILEM **Technical Day***	6

A significant part of the presentations were related to a full paper published in the conference proceedings. In addition to the presentations in the conference segments a key-note was given during the event opening by Professor Jan Søndergaard from the Royal Danish Academy of Fine Arts, and a number of speeches were given by the hosts and organizers during the event opening, segments and social events. Also many segments involved several organized workshop plenum discussions.

Figure 4. Tommy Petersen, on behalf of the Copenhagen City Council, welcomed MSSCE2016 participants with a delicious pancake reception in the impressive and beautifully decorated entrance hall of the Copenhagen City Hall.

An example of a conference segment program is given below – all conference segment programs are shown in the appendix section.

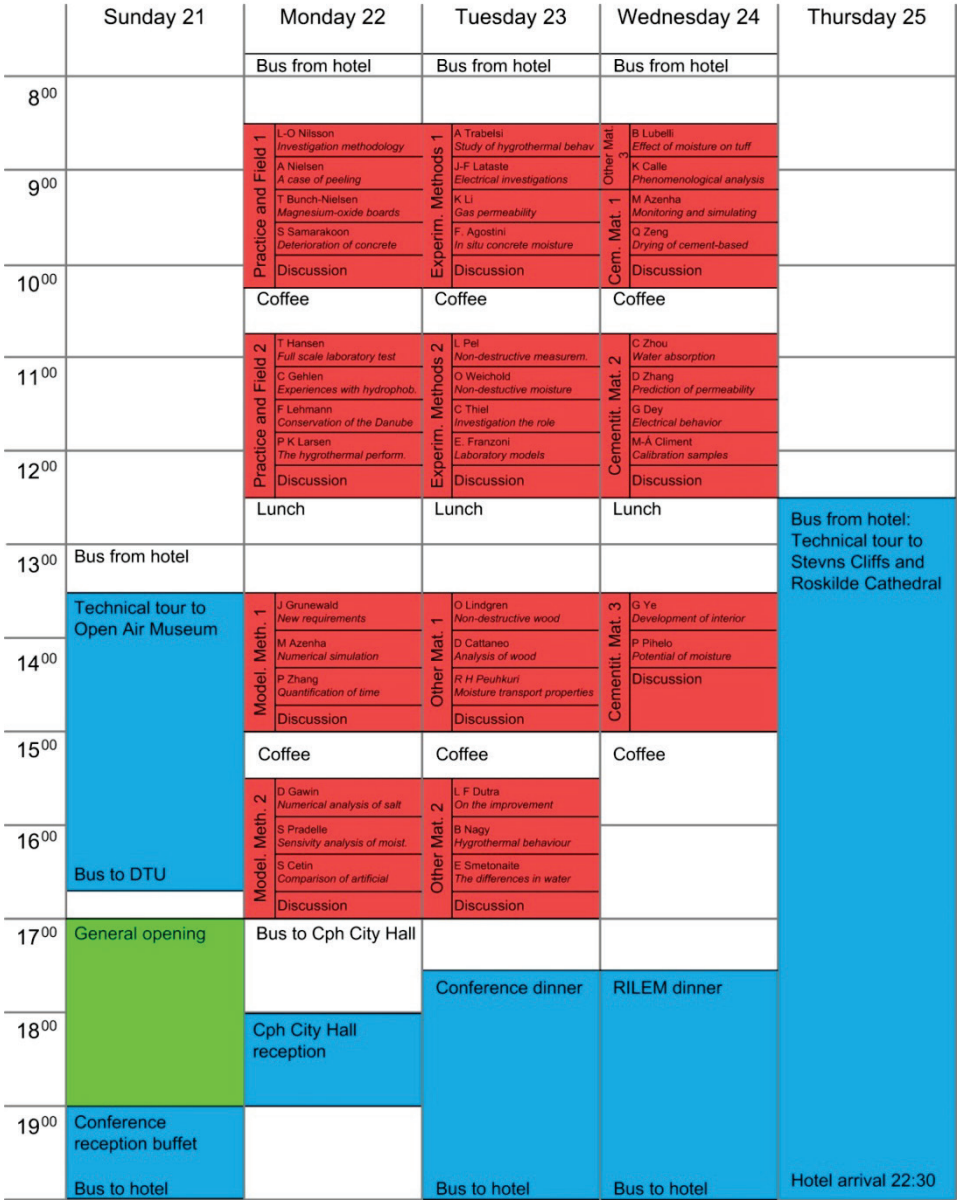

Figure 5. Example of conference segment program, in this case for Moisture in Materials and Structures. Red colored activities are specific to this segment. In the "empty" slot late Wednesday afternoon several other segments had activities available also for the participants on this segment, cf. Figure 1.

Segment contents

MSSCE2016 contained the following conference segments (descriptions are based on the segment folders shown in the appendix section):

Innovation of Teaching in Materials and Structures
Innovation of teaching in the field of materials and structures is one of the most important activities at a technical university. Innovation is as such required to produce better candidates with constantly less resources available, while at the same time accommodate for the changing requirements. Contributions to the conference segment dealt with experiences and/or plans for the teaching and learning of topics within the fields of materials and structures. Contributions to the conference segment included the following topics: Novel teaching and learning concepts, E-learning in theory and in practice, MOOC courses with local activities, Blended E-learning, Experimental activities, Students labs, CDIO and innovation activities, Flipped classroom, Distance learning, International courses, Teaching students with different nationalities, Courses shared by several universities, Project families, supervision and research.

Reliability, Safety and Value of Information
Over the past 4-5 decades the research field of reliability and safety in engineering has progressed significantly and now forms the foundation for most best practices, leading standards, codes and regulations in engineering. Contemporary challenges associated with the need for sustainable societal developments and mitigation of, and adaptation to climate change calls for increased efforts on the identification of rational, safe, reliable and economical engineered solutions. Contributions to the conference segment included the following topics: Uncertainty modeling of loads and resistances, Probabilistic modeling of structural response, Probabilistic modeling of deterioration, Optimization and service life analyses, Risk informed decision making, Value of information analyses, Structural robustness, Probabilistic systems modeling and analysis, Natural hazards modeling and management, Life safety, regulation and standardization, Risk acceptability and risk communication.

Service Life of Cement-Based Materials and Structures
The main objective of COST Action TU1404 is to bring together researchers and practitioners in the pursuit of knowledge integration for better understanding of the service life of cement-based materials and structures. This conference segment was dedicated to the discussion and dissemination of relevant results of Action members, but also from any researcher or practitioner reporting work related to the Workgroups and Group Priorities of the Action. Contributions to the conference segment included the following topics: Fresh properties and setting, Chemical / microstructural characterization, Transport properties and boundary effects, Mechanical properties (including creep), Volume stability, Fracture properties and cracking, Multi-scale models, Multi-physics macroscopic modelling, Modelling assumptions, Product development for testing/monitoring, Product development for software, Reliability considerations, Recommendations, pre-standard documents.

Historical Masonry
A significant part of historical structures are erected in masonry. The long service life of historical masonry stipulates special demands on durability, repair and conservation issues. This conference segment served as a platform for dissemination of state-of-the-art knowledge and created a forum for knowledge transfer within historical masonry. Contributions to the conference included the following topics: Characterization of Masonry Materials, Reproduction of Traditional Composites, Optimization of Masonry Composite Materials, Strength and Durability, Measurement Techniques, Mechanisms of Masonry Decay, Damage analysis and assessments, Repair, Restoration and conservation.

Electrochemistry in Civil Engineering
Electrochemistry is the discipline of chemical reactions taking place at the interface of an electrode and an ionic conductor including the electric charges moving between the electrodes. Electrochemistry is important to different branches within civil engineering, and this includes both the unintended reactions as reinforcement corrosion and the intended reactions driving electro-desalination of construction materials. This conference segment emphasized the application of electrochemistry to technological development as well as testing and fundamental understanding within civil engineering. Contributions to the conference segment included the following topics: Reinforcement corrosion, Electrochemical repair techniques, Electrochemical methods, Electrokinetics in geotechnical engineering.

Moisture in Materials and Structures
Properties and performance of building materials and structures are to a large extent influenced by the moisture conditions in the materials. Obvious examples are thermal conductivity, shrinkage and creep, transport properties, discoloration, emissions to indoor air, most types of deterioration and service-life. Prediction and measurements methods are essential and must be based on a thorough understanding of moisture and quantified material properties and boundary conditions. Contributions to the conference segment included the following topics: Pore structure and moisture properties, Properties of materials and structures, Experimental methods and results, Methods and methodology for moisture measurements in

materials and structures, Boundary conditions, Prediction models, Hysteresis and scanning behavior, Consequences of moisture, The role of moisture in deterioration, Coupled transport phenomena.

Concrete with Supplementary Cementitious Materials
Hydraulic and pozzolanic industrial by-products, natural resources and societal waste are increasingly being used as valuable, supplementary cementitious materials (SCMs) in concrete. Materials such as fly ash, blastfurnace slag, silica fume, calcined clay and limestone are important to obtain concrete with improved and targeted properties and not the least to make the construction industry more sustainable and less CO_2-intensive. Contributions to the conference segment included the following topics: Characterization of SCMs, SCM reactivity in blended cements, Cement-SCM interaction, SCM-admixture interaction, Hydration products, Pore solution composition, Effect of SCM on fresh concrete, Hardened concrete with SCM, SCM influence on microstructure, Durability of concrete with SCM.

Figure 6. Under the leadership of choir-master Emil Ritter the Danish Boys' Choir communicated Danish culture to MSSCE2016 conference participants through Danish summer songs.

Frost Action in Concrete
Frost deterioration is an aesthetical problem, but the durability aspect is even more important, as this can jeopardize the structural integrity of buildings, infrastructure facilities, etc. Despite research in this field has been ongoing since the 1930'es, the mechanism(s) leading to frost damage is still not fully understood. There is still a need for both basic research and practical solutions to the challenges encountered in the field. This conference segment intended to be a forum for presentations of recent research and discussions on e.g. how current knowledge can be implemented in test standards. Contributions to the conference segment included the following topics: Frost at early age, Methods for testing concrete frost resistance, Air void analysis, Frost damage mechanisms, Modelling of frost action, Experimental observations, Experience from field exposure.

Fresh Concrete
Knowledge and understanding of the fresh concrete properties, the casting process and the development in early age properties of concrete can contribute to improved design, execution planning and quality control ultimately resulting in higher quality of the final concrete structure. For instance, numerical, analytical and empirical based simulation tools are increasingly being used as a valuable supplementary tool in the execution phase of concrete structures and serve as an efficient means towards achieving environmentally friendly and cost effective concrete structures. Contributions to the conference segment included the following topics: Mix design, Constituent materials, Flow of fresh concrete, Rheology of fresh concrete, Segregation of aggregate, Formwork pressure, Thixotropy, Fiber distribution, Fiber orientation, Quality control, Temperature development, Stress development.

Cold Region Engineering
The overall topic of this workshop was research and practical experiences in cold regions engineering. Cold regions are part of the earth system characterized by the presence of snow and ice at least a part of the year

and include both polar and sub-polar regions. Such harsh climate strongly affects construction and building technology, and in this workshop a broad view was taken. In addition a more focused geographical focus was on engineering in Greenland. The topics are related to buildings, constructions and transportation infrastructure on land and in the arctic marine environment. Contributions to the workshop included the following topics: Innovative approaches to adapt conventional building and construction technologies to cope with the cold climate, Physical constraints for climate adaptation engineering, Climatic effects on mechanical properties of snow, ice, soil and rock, Buildings designed specifically for cold regions, Renovation of residences in cold climate highlighting both energy consumption and indoor environment, Durability of construction materials in cold climate, Arctic costal and marine structures.

Building Materials and Indoor Environment
Building materials have a significant influence on the indoor environmental quality. Emissions from materials will influence the indoor air quality and the requirements for ventilation. Other indoor environmental parameters like acoustic and lighting conditions are influenced by the surface materials used. Contributions to the conference segment included the following topics: Emissions from materials, Indoor climate Testing of materials, Test standards, Certification, Dynamic calculations of material emissions, Air Cleaning Materials, Air Cleaning, Phase change materials, Acoustic, Lighting.

BIM in Civil Engineering
The conference segment focused on the potential for, and challenges in, adopting open data standards in civil engineering. For decades, the civil engineering domain has been a frontrunner in adopting IT not only for design tasks but also for subsequent production on site with machine guidance. However, the industry still faces challenges in sharing and integrating digital data from different sources during the lifecycle of the facilities. Several research and development initiatives have been started at the global, regional and national levels to try to overcome the challenges. The issues to be addressed include a lack of semantic consensus, incompatible data models, the need for geo referencing, the management of data from different data sources, access rights, information delivery specifications and legislation. As it becomes more common to use or mandate delivery of data in open format there is an increasing demand for knowledge on open BIM in the construction industry.

RILEM Technical Day
During the RILEM Technical Day a series of presentations related to the ongoing technical work within RILEM were given. At the occasion delegates from four RILEM technical committees presented the State-of-the-art within their topic and drafted the expected ongoing committee work. Also integrated in the RILEM Technical Day RILEM TAC awarded Gustavo Colonnetti Medals to Dr. Ruben Snellings and to Dr. Susan Bernal. The Gustavo Colonnetti Medal is awarded to “researchers of less than 35 years old, who have made an outstanding scientific contribution to the field of construction materials and structures”. Both medalists gave presentations of their scientific work.

Figure 7. During the RILEM Technical Day chaired by TAC chair, Dr. Nicolas Roussel (right), one of the two “Gustavo Colonnetti medalist 2016” talks was given by Dr. Ruben Snellings (left).

Financial and scientific support

Scientific approval, so-called scientific sponsorship, of the conference activities have been given by the Technical Activities Committee of RILEM to the entire conference. Additionally COST TU1404 sponsored the segment on Service Life, COST TU1402 was involved in the segment on Reliability, and COST TU1301 was involved in the conference segments on Indoor and SCM. RILEM TC238-SCM sponsored the segment on SCM, and the International Association of Building Physics and RILEM TC248-MMB sponsored the segment on Moisture. All segments were financially supported by the general event sponsors, Knud Højgaards Fond, Larsen & Nielsen Fonden and Ingeborg og Leo Dannins Legat for Videnskabelig Forskning. Direktør Ib Henriksens fond, and Kalk- og Teglværksforeningen supported the segment on Masonry. COST actions TU1301, TU1402 and COST TU1404 covered certain expenses on the conference organization related to their specific segments and granted financial support to COST participants travelling, accommodation and meals. Copenhagen City Council sponsored a reception at the Copenhagen City Hall, and Wonderful Copenhagen gave consultancy support. The Technical University of Denmark and the Danish Technological Institute gave administrative and scientific support, and The Technical University of Denmark supplied infrastructure (rooms, IT, AV).

The support was mentioned orally, displayed at the conference, on the event website, and written in the conference proceedings.

Proceedings

From the conference the proceedings listed below have been published in print or are in the editorial process. All papers in the proceedings were anonymously peer-reviewed.

Innovation of Teaching in materials and Structures, RILEM Proceedings PRO 108, Ed. P. Goltermann, ISBN: 978-2-35158-168-1, 57+IX pages, 6 papers

Service Life of Cement-Based Materials and Structures Vol. 1 & Vol 2, RILEM Proceedings PRO 109, Eds. M. Azneha, I. Gabrijel. T. Kanstad, D. Schlicke and O.M. Jensen, ISBN: 978-2-35158-172-8, 800+XV pages, 80 papers

Historical Masonry, RILEM Proceedings PRO 110, Eds. I. Rörig-Dalgaard and I. Ioannou, ISBN: 978-2-35158-174-2, 251+XII pages, 31 papers

Electrochemistry in Civil Engineering, RILEM Proceedings PRO 111, Ed. L.M. Ottosen, ISBN: 978-2-35158-176-6, 169+X pages, 15 papers and 9 abstracts

Moisture in Materials and Structures, RILEM Proceedings PRO 112, Eds. K.K. Hansen, C. Rode and L.-O. Nilsson, ISBN: 978-2-35158-178-0, 369+XII pages, 38 papers

Concrete with Supplementary Cementitious Materials, RILEM Proceedings PRO 113, Eds. O.M. Jensen, K. Kovler and N. De Belie, ISBN: 978-2-35158-180-3, 455+XII pages, 45 papers

Frost Action in Concrete, RILEM Proceedings PRO 114, Eds. M.T. Hasholt, K. Fridh and R.D. Hooton, ISBN: 978-2-35158-182-7, 239+X pages, 24 papers

Fresh Concrete, RILEM Proceedings PRO 108, Eds. L.N. Thrane, C. Pade, O. Svec and N. Roussel, ISBN: 978-2-35158-184-1, 217+X pages, 21 papers

Cold Region Engineering, Ed. L. Ottosen, ISBN: 978-8-77877-445-3, 73+VII pages, 7 papers and 3 abstracts

Reliability, Safety and Value of Information, Ed. Sebastian Thöns, (To be published),

Building Information Modeling in Civil Engineering, Ed. Jan Karlshøj, (To be published),

The proceedings have been made available to download freely on the event website, and all RILEM proceedings have also been made available through the RILEM website.

Figure 8. Proceedings covering the presentations at MSSCE2016 were issued both in print and electronic form.

Doctoral Courses

Overview

Several doctoral courses took place during MSSCE2016. Each course was organized by a person from DTU Civil Engineering in cooperation with a number of co-organizers from other institutions primarily outside Denmark. A total of 106 participants were registered for the courses. Out of these, the main part, 90 participants, were PhD-students, about 10 were employed in industry, a couple were university professors, and a couple were MSc students. By host institution in total 31 countries were represented by the participants who came from all over the world. The following 6 courses took place:

Course title (shorthand in **bold**)	Registered participants
Service Life *of Cement-Based Materials and Structures*	33
Moisture *in Materials and Structures*	21
Concrete with Supplementary Cementitious Materials ***(SCM)***	24
Clay *and Shale*	10
Concrete and ***Radiological*** *aspects*	6
BIM *in Civil Engineering – focusing on open standards*	12

Figure 9. Some of the course participants and teachers taking a small break from the studies (courses: Service Life, SCM, and Radiological).

Scope and contents of courses

In addition to lectures the courses involved a number of different teaching elements such as preparatory readings, written exercises, hands-on laboratory exercises, report writing, posters and "conference" presentations. Furthermore, the courses included a study tour to a construction site, and social activities during the courses took place to promote a stimulating study atmosphere. In the following the scope and

contents of the courses are briefly explained (descriptions are from the segment folders given in the appendix).

Figure 10. Course participants in safety boots, west and helmet on a study tour to the new Copenhagen pumping station "Kløvermarken" which is under construction by the contractor MT Højgaard. Vice President for Civil Works & Concrete production Mr. Esper Christophersen tells the course participants about the challenges and opportunities faced at the construction site.

Service Life of Cement-Based Materials and Structures
Service life of cement-based materials is a topic of substantial importance since the maintenance of concrete structures every year necessitates massive investments in rehabilitation and repair. However, constantly ongoing research refines our theoretical knowledge about why deterioration takes place, models for prediction of deterioration are improved, and new measures to prevent deterioration processes appear and extend the service life of concrete structures. The course covered important topics related to service life of cement-based materials and structures with a focus on advanced experimental testing methods including: Hydration and microstructure of cement-based materials; Calorimetry, heat release and setting; Elastic properties; Free shrinkage in autogenous conditions; Creep and relaxation, Evolution of mechanical properties since very early age; Nature of the binder on the sensitivity to cracking; Thermo-mechanical and macroscopic modelling of concrete structures.

Moisture in Materials and Structures
Properties and performance of building materials and structures are to a large extent influenced by the moisture conditions in the materials. Prediction and measurement methods are essential and must be based on a thorough understanding of moisture theory, quantified material properties and boundary conditions. The course covered important topics in relation to moisture in materials and structures including: Thermodynamics of moisture; Moisture fixation in materials; Moisture transport in materials and structures; Experimental methods; Moisture measuring methods; Prediction methods; Field applications; Coupled transport phenomena.

Concrete with Supplementary Cementitious Materials
Hydraulic and pozzolanic industrial by-products, natural resources and societal waste are increasingly being used as valuable, supplementary cementitious materials (SCMs) in concrete. Materials such as fly ash, blast-furnace slag, silica fume, calcined clay and limestone are important to obtain concrete with improved and targeted properties and not the least to make the construction industry more sustainable and less CO_2-intensive. The course covered important topics in relation to the use of SCMs in concrete technology including: Properties of SCM; Mix proportions; Fresh concrete; Hydration reactions; Hardened concrete; Durability aspects.

Clay and Shale
Properties of clay and shale as substrate for construction is a field with many question marks. A lack of physical and chemical understanding of properties of these rocks is also critical in the context of sealing membranes and seals in connection with subsurface storage of heat, CO_2, and hydrocarbons. Reservoir

properties of shale itself are also a focus of debate. The course covered important topics in relation to properties of shale and clay including: Elasticity; Pore collapse; Creep; Fracturing; Pore water effects; Electrical properties.

Concrete and Radiological aspects
The depletion of energy resources and raw materials has a huge impact on the building market. In the development of new synthetic building materials the reuse of various (waste) residue streams becomes a necessity. This course dealt with research on the reuse of residues containing enhanced concentrations of natural radionuclides (NORM) in tailor-made building materials in the construction sector while considering the impact on both external gamma exposure of building occupants and indoor air quality. The course covered important topics in relation to concrete and radiological aspects including: Concrete and cement properties; Sampling and measurement challenges; Radiological impact assessment models; Radon emanation and exhalation; Use of NORM residues in building materials.

BIM in Civil Engineering – focusing on open standards
Significant improvements in cost, value and environmental performance can be achieved through the use of open sharable asset information in the creation and operation of civil infrastructure and buildings worldwide. BuildingSMART is an open BIM standard which enables this. The purpose of the course is to demonstrate the correlation between content and methods developed by buildingSMART for identification, modelling and implementation of digitally supported information flow between the parties involved in creating and operating buildings and structures in the built environment. The course covered important topics in relation to BIM in civil engineering aspects including: Industry Foundation Classes (IFC); Model View Definition (MVD); Information Delivery Manual (IDM); The buildingSMART Data Dictionary (bSDD); BuildingSMART's Software Certification procedure and Data Validation based on mvdXML.

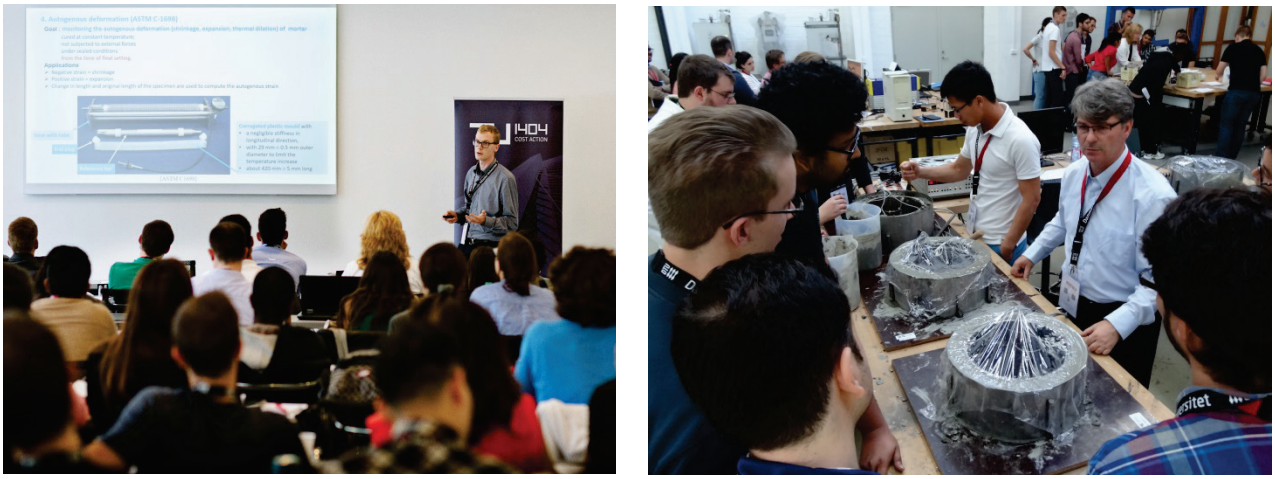

Figure 11. Left: Attentive course participants during a lecture by Dr. Didier Snoeck (credit: Simon Klein-Knudsen). Right: Professor Konstantin Kovler instructs course participants in the lab on how to investigate crack formation in hardening concrete.

Lecturers

The following persons lectured at the courses:
Miguel Azenha, University of Minho, Portugal (Service Life, SCM, Radiological)
Brice Delsaute, Université Libre de Bruxelles, Belgium (assisting teacher: Service Life, SCM, Radiological)
José Granja, University of Minho, Portugal (Service Life, SCM, Radiological)
Ole Mejlhede Jensen, Technical University of Denmark, (Service Life, SCM, Radiological)

Konstantin Kovler, Israel Institute of Technology, (Service Life, SCM, Radiological)
Markus Krüger, Graz University of Technology, Austria (Service Life, SCM, Radiological)
Dirk Schlicke, Graz University of Technology, Austria (Service Life, SCM, Radiological)
Didier Snoeck, Ghent University, Belgium (Service Life, SCM, Radiological)
Stéphanie Staquet, Université Libre de Bruxelles, Belgium (Service Life, SCM, Radiological)
Kurt Kielsgaard Hansen, Technical University of Denmark (Moisture)
Anker Nielsen, Aalborg University, Denmark (Moisture)
Carsten Rode, Technical University of Denmark, (Moisture)
Lars Wadsö, Lund University of Technology, Sweden (Moisture)
Nele De Belie, Ghent University, Belgium (SCM)
Barbara Lothenbach, EMPA, Dübendorf, Switzerland (SCM)
Lars Vabbersgaard Andersen, Aalborg University, Denmark (Clay)
Louise J. Belmonte, Technical University of Denmark (Clay)
Finn Engstrøm, Mærsk Oil, Denmark (Clay)
Niels Foged, Technical University of Denmark (Clay)
Rune M. Holt, Norweigan University of Science and Technology (Clay)
Emil Makovicky, Copenhagen University, Denmark (Clay)
André Revil, University of Savoie Mont Blanc, France (Clay)
Zoltán Sas, Queen's University Belfast, United Kingdom (Radiological)
Wouter Schroeyers, Hasselt University, Belgium (Radiological)
Håvard Bell, Catenda, Norway (BIM)
Tim Chipman, Constructivity LLC, United States (BIM)
Jan Karlshøj, Technical University of Denmark (BIM)
Väino Tarandi, KTH Royal Institute of Technology, Sweden (BIM)

Workload, ECTS points and learning outcomes

The workload of each course was approximately 140 hours corresponding to 5 ECTS points, including elements such as the teaching period during the course, readings prior to the course, preparation of personal presentation, and completion of individual posters. The learning outcomes of the participants were evaluated mainly through the individual poster and the plenum "conference" presentations finalizing the courses – or alternatively through writing of individual reports. A certificate of participation was issued to the participants who completed the courses.

Figure 12. Left: Course participants studying each other's poster during a coffee break. Participant interaction was promoted by requiring them to vote for a "Best poster student prize" (credit: Simon Klein-Knudsen). Right: A group of participants gives a plenum "conference" presentation based on course lectures, readings and lab work.

Course participation required one week of attendance at The Technical University of Denmark, except *Moisture* where two weeks of attendance was required. An example of an overview course program is given below.

Concrete with Supplementary Cementitious Materials

Technical University of Denmark, Lyngby, Denmark, 15-19 August 2016

Organized by: Ole Mejlhede Jensen, Konstantin Kovler and Nele de Belie

	Monday 15	Tuesday 16	Wednesday 17	Thursday 18	Friday 19
8^{00}					
9^{00}	1. Introduction to course and presentation of participants (omj)	6. Autogenous deformation Lecture (omj)	10. Hydration of cements Lecture (blo)	14. Sustainability Lecture (ndb)	19. Preparation of participant presentations (omj)
10^{00}	Coffee	Coffee	Coffee	Coffee	Coffee
11^{00}	2. Cement and binders Lecture (kko)	7. Elastic properties Lecture (jlg)	11. Durability – general aspects Lecture (ndb)	15. Characterization methods Lecture (blo)	19. Preparation of participant presentations cont.
12^{00}	Lunch	Lunch	Lunch	Lunch	Lunch
13^{00}				Group photo	
14^{00}	3. Lab preparations Lecture (maz)	8. Creep and relaxation Lecture (sst)	12. Durability – shrinkage & self-healing Lecture (dsn)	16. Lab A & B written exercise (sst)	20. Participant presentations (omj)
15^{00}	Coffee	Coffee	Coffee	Coffee	Coffee
16^{00}	4. Lab exercise Part A (sst)	9. Lab exercise Part B (sst)	13. Effect of SCMs Lecture (blo)	17. Study tour	20. Participant presentations cont.
17^{00}					Closure
	5. Barbecue		Jury meeting		
18^{00}				18. Course dinner	

Module responsible: Miguel Azenha (maz), Nele De Belie (ndb), Jose Granja (jlg), Ole Mejlhede Jensen (omj), Konstantin Kovler (kko), Barbara Lothenbach (blo), Didier Snoeck (dsn), Stéphanie Staquet (sst) Rev. 17.5.16

Figure 13. Example of overview program for the course on Concrete with Supplementary Cementitious Materials (SCM).

Financial and scientific support

Scientific approval, so-called scientific sponsorship, of the courses have been given by the Educational Activities Committee of RILEM (all courses), additionally by COST TU1301 (Radiological), by COST TU1404 (Service Life), by RILEM TC238-SCM (SCM), and by the International Association of Building Physics and RILEM TC248-MMB (Moisture). All courses were financially supported by the general event sponsors, Knud Højgaards Fond, Larsen & Nielsen Fonden and Ingeborg og Leo Dannins Legat for

Videnskabelig Forskning. COST TU1301 and COST TU1404 covered considerable expenses on teacher's participation in the two courses on Radiological and Service Life respectively. These two COST actions additionally covered support grants to approx. 25 participants. The students and teachers were impressed by the extent of the support. The sponsorships were mentioned orally at the course and written in course material. Furthermore, information was given on the complementary 3-years RILEM membership offered to PhD-students participating in the doctoral course.

Course evaluation

At the end of the courses an evaluation was conducted. About 2/3 of the participants completed the questionnaire which dealt with every module of the courses. On a scale "unsatisfactory, bad, satisfactory, well, very well", far the majority of the responses were "well" or "very well". Many students expressed that they found the courses very good and useful for their PhD-studies. Written evaluation comment by a student: "*This was the best organized summer school which I have ever attended. Well done! Lab and other exercises are very useful to have.*".

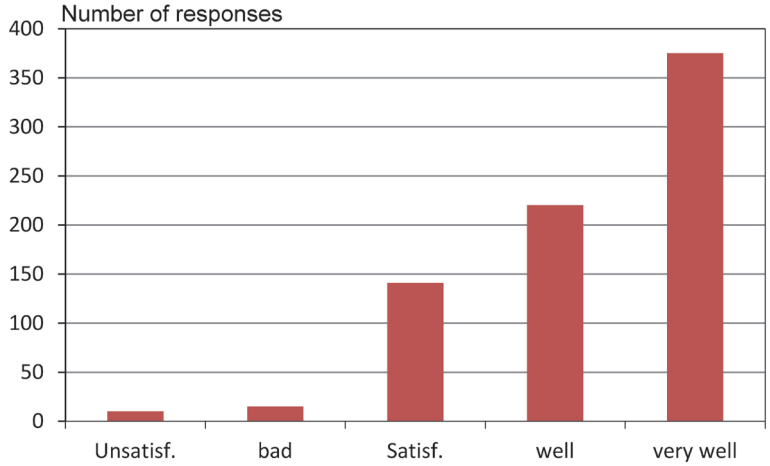

Figure 14. Left: Evaluation responses by the participants – they were very satisfied with the courses. Right: A happy participant, Mrs. Francesca Lolli, receives her poster presentation "gold prize" during the gala dinner – handed over by Professor Nele De Belie.

Based on the responses received through the questionnaires and personal contacts during and after the course it is concluded that the event was very successful.

Meetings

Overview

Several scheduled meetings took place during MSSCE2016. These were related to the main scientific organizations involved in MSSCE2016: RILEM and COST. Some meetings were short and lasted for 2 hours, other meetings stretched across 2 full days.

RILEM meetings

RILEM Technical committee meetings were attended by approximately 140 persons – some of these participated in up to 9 different TC meetings. 11 RILEM TCs had formal meetings during the event:

ASC: Accelerated laboratory test for the assessment of the durability of materials with respect to salt crystallization. Chair: Barbara Lubelli. 18 participants.

CIM: Benchmarking Chloride Ingress Models on Real-life Case Studies: Theory and Practice. Chair: Eddie A.B. Koenders. 20 participants.

MRP: Measuring Rheological Properties of Cement-based Materials. Chair: Mohammed Sonebi. 11 participants.

TRM: Tests for reactivity of supplementary cementitious materials. Chair: Karen Scrivener. 17 participants.

238-SCM: Hydration and microstructure of concrete with supplementary cementitious materials. Chair: Nele De Belie. 21 participants.

246-TDC: Test methods to determine durability of concrete under combined environmental actions and mechanical load. Chair: Yan Yao. 12 participants.

248-MMB: Methods of measuring moisture in building materials and structures. Chair: Lars-Olof Nilsson. 15 participants.

254-CMS: Thermal cracking of massive concrete structures. Chair: Eduardo M.R. Fairbairn. 15 participants.

255-FRS: Fire resistance of concrete structures repaired with polymer cement mortar. Chair: Takafumi Noguchi. 3 participants.

258-AAA: Avoiding alkali aggregate reactions in concrete - Performance based concept. Chair: Børge Johannes Wigum. 28 participants.

262-SCI: Characteristics of the steel/concrete interface and their effect on initiation of chloride-induced reinforcement corrosion. Chair: Ueli Angst. 18 participants.

Figure 15. RILEM TC 238-SCM meeting participants enjoy the wonderful Danish weather.

RILEM Administrative meetings during MSSCE2016 were attended by approximately 60 persons – some of these participated in up to 6 different meetings.

EAC: Educational Activities Committee. Chair: R. Doug Hooton. 4 participants.
BOE: Board of Editors. Chairs: Nicolas Roussel and Pietro Lura. 14 participants.
DAC: Development Advisory Committee. Chair: Geert De Schutter. 14 participants.
TAC: Technical Activities Committee. Chair: Nicolas Roussel. 15 participants.
DEV: Development meeting. Chair Ravindra Gettu. 24 participants.
BUR: Bureau. Chair: Johan Vyncke. 13-16 participants.
GC: General Council. Chair: Johan Vyncke. Approximately 50 participants.

Figure 16. Attentive participants in the DTU main auditorium during the RILEM General Council meeting.

COST meetings

Three COST actions held several different meetings during MSSCE2016.

COST action TU1301, NORM for Building materials (NORM4Building). Chair: Wouter Schroeyers. 35 participants. Scientific meetings: Work Group meeting. Administrative meetings: Core group meeting, Management Committee meeting, and NORM Association meeting.

COST action TU1402, Quantifying the value of structural health monitoring. Chair: Sebastian Thöns. 38 participants. Scientific meetings: 3 Work Group meetings. Administrative meetings: Steering Committee and Advisory Board Meeting.

COST action TU1404, Towards the next generation of standards for service life of cement-based materials and structures. 80 participants. Chair: Miguel Azenha. Scientific meetings: 3 Work Group meetings. Administrative meetings: Management Committee meeting.

Technical tours

Three technical tours were arranged for the MSSCE2016 event participants. Although they took place in a relaxed social atmosphere their focus was the technical content. Each tour had approximately 50 participants which were divided into 2-3 groups.

Tour to the Open Air Museum
In addition to general information about the Open Air Museum – creation of the museum, principles for the selection and maintenance of buildings, etc. – the tour involved visits to 5 different farms where specific historic building and construction technical features were shown and explained. The tour was finalized with a walk to the nearby protected, historical, industrial plant "Brede Works". The tour was guided by Arne Egerup and Niels Mejlhede Jensen, both educated civil engineers from DTU with PhD-degrees in timber structures and hydrodynamics respectively.

Tour to Stevns' Cliffs and Roskilde Cathedral
Inside at Stevns' Museum and outdoor at the cliffs participants were told about the unique geologic features of the cliffs and about the utilization of the cliffs for building blocks and as a lime resource. In Højerup Old Church Senior Research Conservator Isabelle Brajer from the National Museum of Denmark gave a talk about conservation principles and the present ongoing restauration of the wall paintings. In Roskilde Cathedral Chief structural architect Ole Højlund guided a tour on peculiarities of the cathedral, and finally Cathedral Organist Finn Ewald and Reinhard Jaud demonstrated the historical organ.

Tour of the DTU Civil Engineering labs
At the tour selected laboratory facilities, instruments and ongoing research projects were presented. In particular the construction materials laboratories, the concrete laboratory for mixing and casting, and the laboratory for large scale structural investigation were shown. The tour was guided by Associate professor Marianne Tange Hasholt.

Figure 17. Left: During a technical tour to the Open-Air Museum Dr. Niels Mejlhede Jensen explains event delegates about the beneficial fire limiting properties of the sea-weed thatched roof at the farmhouse from Læsø. Right: Senior Research Conservator Isabelle Brajer from The National Museum of Denmark tells about restoration and conservation principles of wall paintings in the Højerup Old Church.

Appendices

Folders
- Conference segments
- Doctoral courses

Programs
- Overview timetable
- Conference segments
- Doctoral courses
- RILEM week

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

In the period 15-29 August a number of doctoral course and conference segments will take place at the Technical University of Denmark under the common umbrella MSSCE 2016. The conference segment described in this folder is part of this major event. MSSCE 2016 includes the following segments:

- Innovation of Teaching in Materials and Structures
- Reliability, Safety and Value of Information
- Service Life of Cement-based Materials and Structures
- Historical Masonry
- Electrochemistry in Civil Engineering
- Moisture in Materials and Structures
- Concrete with Supplementary Cementious Materials
- Frost Action in Concrete
- Fresh Concrete
- Clay and Shale
- Cold Region Engineering
- Building Materials and Indoor Environment
- Building Information Modelling in Civil Engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

The Knud Højgaard Foundation and the Larsen & Nielsen foundation are financially sponsoring this event. The aim of the foundations includes promotion of research, development and teaching within the construction area.

RILEM Week 2016

RILEM is the international union of laboratories and experts in construction materials, systems, and structures. RILEM has the aim to promote scientific cooperation. The event described in this folder runs in conjunction with the Annual RILEM Week 2016 (21-24 Aug 2016). The RILEM Week is the highlight of the RILEM calendar each year and includes meetings in many of RILEM's technical and administrative committees. More information about RILEM can be found at www.rilem.net

Scientific sponsor

RILEM is scientific sponsor of the conference along with the Technical University of Denmark, Department of civil Engineering.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Conference segment on

Innovation of Teaching in Materials and Structures

Lyngby, Denmark, 21-24 August 2016

Call for papers

Organizing committee

P. Goltermann

Scientific committee

To be announced

Sponsored by

RILEM
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Conference segment contents

Innovation of teaching in the field of materials and structures is one of the most important activities at a technical university. Innovation is as such required to produce better candidates with constantly less resources available at your university, while at the same time accommodate for the changing requirements.

Contributions to the conference segment should deal with experiences and/or plans for the teaching and learning of topics within the fields of materials and structures.

Contributions to the conference segment may be within – but are not limited to – the following topics:

- Novel teaching and learning concepts
- E-learning in theory and in practice
- MOOC courses with local activities
- Blended E-learning
- Experimental activities
- Students labs
- CDIO and innovation activities
- Flipped classroom
- Distance learning
- International courses
- Teaching students with different nationalities
- Courses shared by several universities
- Project families, supervision and research

Participants may have a background as university teachers, university researchers, PhD students, or industry specialists. The conference language is English.

Publication dates

Submissions for conference presentation and publication in reviewed proceedings need to adhere to the following deadlines:

Abstract due:
29th January 2016
(Acceptance of abstract: 8th March 2016)
Full manuscript due:
21st March 2016
(Acceptance of full manuscript: 27th May 2016)
Final manuscript due:
8th July 2016

Abstracts and papers should be submitted through the conference home page:
www.conferencemanager.dk/MSSCE2016/call-for-papers.html

Venue and Time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The conference segment will take place 23-24 August 2016, starting with a common conference opening in the late afternoon of 21 August. The conference segment will be preceded by a DTU-RILEM Doctoral Course 8-19 August 2016 on different conference topics.

Technical tours and social activities

Tours are planned to take place on 21st and 25th August. The tours will involve places of technical and societal interest inside and outside the greater Copenhagen area. The social activities during the conference will include a conference opening reception and a conference dinner

Registration, price and accommodation

The deadline for conference registration is Friday, 8th July 2016 through the conference website. The conference fee covers participation in the MSSCE 2016 conference segment of your choice and includes conference proceedings, refreshments, lunches, conference opening, conference dinner and bus transport, option to present at the registered segment

- Regular participant: EUR 550
- PhD students: EUR 400

Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels. Bus transport between the suggested hotels and the event location will be provided.

Further information

Further information can be found at the MSSCE 2016 event website;
www.conferencemanager.dk/MSSCE2016/1-innovation-of-teaching-in-materials-and-structures-conf.html
- or you may contact the segment responsible:

Per Goltermann
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.Teaching@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

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- Innovation of teaching in materials and structures
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- Electrochemistry in Civil Engineering
- Moisture in materials and structures
- Concrete with supplementary cementitious mater.
- Frost action in concrete
- Fresh Concrete
- Clay and Shale
- Cold region engineering
- Building materials and indoor environment
- BIM in Civil Engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

The Knud Højgaard Foundation and the Larsen & Nielsen foundation are financially sponsoring this event. The aim of the foundations includes promotion of research, development and teaching within the construction area.

RILEM Week 2016

RILEM is the international union of laboratories and experts in construction materials, systems, and structures. RILEM has the aim to promote scientific cooperation. The event described in this folder runs in conjunction with the Annual RILEM Week 2016 (21-24 Aug 2016). The RILEM Week is the highlight of the RILEM calendar each year and includes meetings in many of RILEM's technical and administrative committees. More information about RILEM can be found at www.rilem.net

Scientific sponsor

RILEM is scientific sponsor of the conference segment through the technical committee JCSS: Joint Committee on Structural Safety. This segment also serves as a dissemination event for the COST Action.

TU1402 "Quantifying the Value of Structural Health Monitoring".

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Conference segment on

Reliability, Safety and Value of Information

Lyngby, Denmark, 23 August 2016

Call for papers

Organizing committee

M. H. Faber, J. D. Sørensen, S. Thöns and A.C.W.M Vrouwenvelder

Scientific committee

Members of the Joint Committee on Structural Safety

Sponsored by

RILEM
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Conference segment contents

Over the past 4-5 decades the research field of reliability and safety in engineering has progressed significantly and now forms the foundation for most best practices, leading standards, codes and regulations in engineering.

Contemporary challenges associated with the need for sustainable societal developments and mitigation of, and adaptation to climate change calls for increased efforts on the identification of rational, safe, reliable and economical engineered solutions.

The conference segment will serve as a platform for sharing new ideas and concepts in the field of risk informed decision making, reliability and safety as well as for setting the direction and focus of future developments.

Contributions should deal with theory, methods, models and applications within – but not limited to – the following topics:

- Uncertainty modeling of loads and resistances
- Probabilistic modeling of structural response
- Probabilistic modeling of deterioration
- Optimization and service life analyses
- Risk informed decision making
- Value of information analyses
- Structural robustness
- Probabilistic systems modeling and analysis
- Natural hazards modeling and management
- Life safety, regulation and standardization
- Risk acceptability and risk communication

Participants may have a background as university researchers, PhD students, or industry specialists. The conference language is English.

Publication dates

Submissions for conference presentation and publication in reviewed proceedings need to adhere to the following deadlines:

Abstract due:
29th January 2016
(Acceptance of abstract: 8th March 2016)
Full manuscript due:
21st April 2016
(Acceptance of full manuscript: 27 May 2016)
Final manuscript due:
8 July 2016

Abstracts should be submitted through EASYCHAIR the online submission system on the conference website.

Venue and Time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The conference segment will take place 23 August 2016, starting with a common conference opening in the late afternoon of 21 August. The conference segment will be preceded by a DTU-RILEM Doctoral Course 15-19 August 2016 on the same topic as the conference segment.

Technical tours and social activities

Tours are planned to take place on 21st/25th August. The tours will involve places of technical and societal interest inside and outside the greater Copenhagen area. The social activities during the conference will include an opening and a conference dinner.

Registration, price and accommodation

The deadline for event registration is Friday, 8th July 2016 through the conference website. The conference fee covers participation in the MSSCE 2016 conference segment of your choice and includes conference proceedings, refreshments, lunches, conference opening, conference dinner and bus transport, option to present at the registered segment

- Regular participant: EUR 550
- PhD students: EUR 400

Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels. Bus transport between the suggested hotels and the event location will be provided.

Further information

Further information can be found at the MSSCE 2016 event website;
http://www.conferencemanager.dk/MSSCE2016/2reliability-safety-and-value-of-information-conf.html
- or you may contact the segment responsible:

Michael H. Faber
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.Reliability@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

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- Innovation of teaching in materials and structures
- Reliability and safety
- Value of information in structural health monitoring
- Service life of cement-based materials and struct
- Historical masonry
- Wood science
- Electrochemistry in civil engineering
- Moisture in materials and structures
- Concrete with supplementary cementitious mater.
- Frost action in concrete
- Sim. tools in the execution phase of concr. struct.
- Biobased building materials
- Soils, rocks and geotechnical engineering
- Cold region engineering
- Building materials and indoor environment
- BIM in civil engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

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RILEM Week 2016

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Scientific sponsor

COST action TU1404 "Towards the next generation of standards for service life of cement-based materials and structures" is scientific sponsor of the conference segment. COST action TU1404 starts its activities in 2014 and has more than 20 participating countries, cf.
http://www.cost.eu/COST_Actions/tud/Actions/TU1404

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Conference segment on

Service life of cement-based materials and structures

Lyngby, Denmark, 21-24 August 2016

Call for papers

Organizing committee

Miguel Azenha, TBD, O.M. Jensen

Scientific committee

Management Committee of COST action TU1404

Sponsored by

COST action TU1404, RILEM
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Conference segment contents

The main objective of COST Action TU1404 is to bring together researchers and practitioners in the pursuit of knowledge integration for better understanding of the service life of cement based materials and structures. This conference segment is dedicated to the discussion and dissemination of relevant results of Action members, but also from any researcher or practitioner reporting work related to the Workgroups and Group Priorities of the Action.

WG1 - Testing of CBM

GP1a - Fresh properties and setting
GP1b - Chemical / microstructural characterization
GP1c - Transport properties and boundary effects
GP1d - Mechanical properties (including creep)
GP1e - Volume stability
GP1f - Fracture properties and cracking

WG2 - Modeling of CBM and behavior of structures

GP2a - Multi-scale models
GP2b - Multi-physics macroscopic modelling
GP2c - Modelling assumptions

WG3 - Development of products and recommendations

GP3a - Product development for testing/monitoring
- GP3b - Product development for software
- GP3c - Reliability considerations
- GP3d - Recommendations, pre-standard documents

Participants may have a background as university researchers, PhD students, or industry specialists. The conference language is English.

Publication dates

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Abstract due:
8 January 2016
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21 March 2016
(Acceptance of full manuscript: 27 May 2016)
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Venue and Time

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Technical tours and social activities

Tours are planned to take place on 20-21 August. The tours will involve places of technical and societal interest inside and outside the greater Copenhagen area. The social activities during the conference will include a conference opening reception, a guided Copenhagen city walk and a conference dinner in down-town Copenhagen.

Registration, costs and accommodation

Participants should register before 8 July 2016 through the conference home page. The conference fee covers participation in the conference part and technical tours of MSSCE 2016 and includes conference proceedings, refreshments, lunches, opening reception, conference dinner and bus transport.

- Delegates: EUR 600
- PhD students: EUR 400

Arrangements are made with hotels in central Copenhagen. Bus transport between the hotels and the event location will be provided.

Further information

Further information can be found at the home page of the general event
www.conferencemanager.dk/MSSCE2016
- or you may contact the segment responsible:
Ole Mejlhede Jensen
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.Servicelife@byg.dtu.dk

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- Fresh Concrete
- Clay and Shale
- Cold Region Engineering
- Building Materials and Indoor Environment
- Building Information Modelling in Civil Engineering

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Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Conference segment on

Historical Masonry

Lyngby, Denmark, 21-24 August 2016

Call for papers

Organizing committee

I. Rörig-Dalgaard, I. Ioannou

Scientific committee

Maria Stefanidou
Daniel V. Oliveira
Hilde De Clercq
A. Elena Charola
Muzahim Al-Mukhtar

Sponsored by

RILEM
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark
Lime- and Brickworks association, Denmark
Director Ib Henriksens Foundation, Denmark

rilem
KALK- OG TEGLVÆRKSFORENINGEN
DIREKTØR IB HENRIKSENS FOND
DTU

Conference segment contents

A significant part of historical structures are erected in masonry. The long service life of historical masonry stipulates special demands on durability, repair and conservation issues.

This conference segment will serve as a platform for dissemination of state-of-the-art knowledge and will create a forum for knowledge transfer within historical masonry.

Contributions to the conference segment should deal with theory, modelling, or results from experimental investigations with relation to historical masonry and may fall within – but are not limited to – the following topics:

- Characterization of Masonry Materials
- Reproduction of Traditional Composites
- Optimization of Masonry Composite Materials
- Strength and Durability
- Measurement Techniques
- Mechanisms of Masonry Decay
- Damage analysis and assessments
- Repair, Restoration and conservation

Participants may have a background as university researchers, PhD students, scientists at national institutes or industry specialists. The conference language is English.

Publication dates

Submissions for conference presentation and publication in reviewed proceedings need to adhere to the following deadlines:

Abstract due:
22 January 2016
(Acceptance of abstract: 29 January 2016)
Full manuscript due:
21 March 2016
(Acceptance of full manuscript: 27 May 2016)
Final manuscript due:
8 July 2016

Abstracts and papers should be submitted through the conference home page: http://www.conferencemanager.dk/MSSCE 2016/ call-for-papers.html

Venue and Time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The conference segment will take place 21-24 August 2016, starting with a common conference opening in the late afternoon of 21 August. The conference segment will be preceded by a DTU-RILEM Doctoral Course 8-19 August 2016 on different conference topics.

Technical tours and social activities

Tours are planned to take place on 21st and 25th August. The tours will involve places of technical and societal interest inside and outside the greater Copenhagen area. The social activities during the conference will include a conference opening reception and a conference dinner

Registration, costs and accommodation

The deadline for conference registration is Friday, 8th July 2016 through the conference website. The conference fee covers participation in the MSSCE 2016 conference part of your choise and includes conference proceedings, refreshments, lunches, conference opening, conference dinner and bus transport, option to present at the registered segment

- Regular participant: EUR 550
- PhD students: EUR 400

Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels. Bus transport between the suggested hotels and the event location will be provided.

Further information

Further information can be found at the MSSCE 2016 event website; http://www.conferencemanager.dk/MSSCE2016/ 4-historical-masonry-conf.html - or you may contact the segment responsible:

Inge Rörig-Dalgaard
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.Masonry@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

In the period 15-29 August a number of doctoral course and conference segments will take place at the Technical University of Denmark under the common umbrella MSSCE 2016. The conference segment described in this folder is part of this major event. MSSCE 2016 includes the following segments:

- Innovation of Teaching in Materials and Structures
- Reliability, Safety and Value of Information
- Service Life of Cement-based Materials and Structures
- Historical Masonry
- Electrochemistry in Civil Engineering
- Moisture in Materials and Structures
- Concrete with Supplementary Cementious Materials
- Frost Action in Concrete
- Fresh Concrete
- Clay and Shale
- Cold Region Engineering
- Building Materials and Indoor Environment
- Building Information Modelling in Civil Engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

The Knud Højgaard Foundation and the Larsen & Nielsen foundation are financially sponsoring this event. The aim of the foundations includes promotion of research, development and teaching within the construction area.

RILEM Week 2016

RILEM is the international union of laboratories and experts in construction materials, systems, and structures. RILEM has the aim to promote scientific cooperation. The event described in this folder runs in conjunction with the Annual RILEM Week 2016 (21-24 Aug 2016). The RILEM Week is the highlight of the RILEM calendar each year and includes meetings in many of RILEM's technical and administrative committees. More information about RILEM can be found at www.rilem.net

Scientific sponsor

RILEM is scientific sponsor of the conference along with the Technical University of Denmark, Department of civil Engineering.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Conference segment on

Electrochemistry in Civil Engineering

Lyngby, Denmark, 21-23 August 2016

Call for papers

Organizing committee

Lisbeth M. Ottosen

Sponsored by

RILEM
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Conference segment contents

Electrochemistry is the discipline of chemical reactions taking place at the interface of an electrode and an ionic conductor including the electric charges moving between the electrodes. Electrochemistry is important to different branches within civil engineering, and this includes both the unintended reactions as reinforcement corrosion and the intended reactions driving electro-desalination of construction materials.

This conference segment emphasizes the application of electrochemistry to technological development as well as testing and fundamental understanding within civil engineering.

Contributions to the conference segment may be within – but are not limited to:

Reinforcement corrosion

- Corrosion mechanisms and propagation
- Modeling of service life

Electrochemical repair techniques

- Cathodic protection
- Electrochemical chloride extraction
- Realkalisation
- Electro-desalination for heritage conservation
- Electrokinetic decontamination of construction materials

Electrochemical methods

- Electrical resistivity as non-destructive test
- Accelerated chloride diffusivity tests
- Impedance spectroscopy

Electrokinetics in geotechnical engineering

- Electroosmotic dewatering

Publication dates

Submissions for conference presentation and publication in reviewed proceedings need to adhere to the following deadlines:

Abstract due:
29th January 2016
(Acceptance of abstract: 8th March 2016)
Full manuscript due:
21st April 2016
(Acceptance of full manuscript: 27th May 2016)
Final manuscript due:
8th July 2016

Abstracts and papers should be submitted through the conference home page: www.conferencemanager.dk/MSSCE2016/call-for-papers.html

Venue and Time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The conference segment will take place 23-24 August 2016, starting with a common conference opening in the late afternoon of 21 August. The conference segment will be preceded by a DTU-RILEM Doctoral Course 8-19 August 2016 on different conference topics.

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Registration, price and accommodation

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- Regular participant: EUR 550
- PhD students: EUR 400

Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels. Bus transport between the suggested hotels and the event location will be provided.

Further information

Further information can be found at the MSSCE 2016 event website;
www.conferencemanager.dk/MSSCE2016/5-electrochemistry-in-civil-engineering-conf.html
- or you may contact the segment responsible:

Lisbeth M. Ottosen
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.Electrochemistry@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

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- Fresh Concrete
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- Building Information Modelling in Civil Engineering

More information about MSSCE 2016 can be found at www.conferencemanager.dk/MSSCE2016

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Scientific sponsor

RILEM is scientific sponsor of the conference segment through the technical committee TC 248-MMB: Methods of Measuring Moisture in Building Materials and Structures. TC 248-MMB started activities in 2012 and has about 30 members from all over the world.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Conference segment on

Moisture in Materials and Structures

Lyngby, Denmark, 21st-24th August 2016

Call for papers

Organizing committee

K. Kielsgaard Hansen, L.-O. Nilsson, C. Rode

Scientific committee

Members of RILEM TC 248-MMB

Sponsored by

RILEM TC 248-MMB
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark
Moisture Research Centre, Lund, Sweden
International Association of Building Physics
IDA Building Physics, Denmark
IDA Materials, Denmark
SINTEF Byggforsk, Norway

Conference segment contents

Properties and performance of building materials and structures are to a large extent influenced by the moisture conditions in the materials. Obvious examples are thermal conductivity, shrinkage and creep, transport properties, discolouration, emissions to indoor air, most types of deterioration and service-life. Prediction and measurements methods are essential and must be based on a thorough understanding of moisture and quantified material properties and boundary conditions. The conference segment will serve as a platform for dissemination of state-of-the-art knowledge.

Contributions to the conference segment should deal with theory, modelling or results from experimental investigations with relation to moisture in materials and structures. Contributions to the conference segment may be within – but are not limited to – the following topics:

- Pore structure and moisture properties
- Properties of materials and structures
- Experimental methods and results
- Methods and methodology for moisture measurements in materials and structures
- Boundary conditions
- Prediction models
- Hysteresis and scanning behaviour
- Consequences of moisture
- The role of moisture in deterioration
- Coupled transport phenomena

Participants may have a background as university researchers, PhD students, or industry specialists. The conference language is English.

Publication dates

Submissions for conference presentation and publication in reviewed proceedings need to adhere to the following deadlines:

Abstract due:
29th January 2016
(Acceptance of abstract: 8th March 2016)
Full manuscript due:
21st March 2016
(Acceptance of full manuscript: 27th May 2016)
Final manuscript due:
8th July 2016

Abstracts and papers should be submitted through the conference home page:
www.conferencemanager.dk/MSSCE2016/call-for-papers.html

Venue and Time

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Registration, price and accommodation

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- Regular participant: EUR 550
- PhD students: EUR 400

Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels. Bus transport between the suggested hotels and the event location will be provided.

Further information

Further information can be found at the MSSCE 2016 event website;
www.conferencemanager.dk/MSSCE2016/6-moisture-in-materials-and-structures-conf.html

- or you may contact the segment responsible:
Kurt Kielsgaard Hansen
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.Moisture@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

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- Frost Action in Concrete
- Fresh Concrete
- Clay and Shale
- Cold Region Engineering
- Building Materials and Indoor Environment
- Building Information Modelling in Civil Engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

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RILEM Week 2016

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Scientific sponsor

RILEM is scientific sponsor of the conference segment through the technical committee TC 238-SCM: Hydration and microstructure of concrete with supplementary cementitious materials. TC 238-SCM started activities in 2011 and has about 50 members from all over the world.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016
Conference segment on

Concrete with Supplementary Cementitious Materials

Lyngby, Denmark, 21st-24th August 2016

Call for papers

Organizing committee

N. de Belie, K. Kovler, O.M. Jensen

Scientific committee

Members of RILEM TC 238-SCM

Sponsored by

RILEM TC 238-SCM
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Conference segment contents

Hydraulic and pozzolanic industrial by-products, natural resources and societal waste are increasingly being used as valuable, supplementary cementitious materials (SCMs) in concrete.

Materials such as fly ash, blastfurnace slag, silica fume, calcined clay and limestone are important to obtain concrete with improved and targeted properties and not the least to make the construction industry more sustainable and less CO_2-intensive. The conference segment will serve as a platform for dissemination of state-of-the-art knowledge.

Contributions to the conference segment should deal with theory, modeling, or results from experimental investigations with relation to the use of SCMs in concrete. Contributions to the conference segment may be within – but are not limited to – the following topics:

- Characterization of SCMs
- SCM reactivity in blended cements
- Cement-SCM interaction
- SCM-admixture interaction
- Hydration products
- Pore solution composition
- Effect of SCM on fresh concrete
- Hardened concrete with SCM
- SCM influence on microstructure
- Durability of concrete with SCM

Participants may have a background as university researchers, PhD students, or industry specialists. The conference language is English.

Publication dates

Submissions for conference presentation and publication in reviewed proceedings need to adhere to the following deadlines:

Abstract due:
29th January 2016
(Acceptance of abstract: 8th March 2016)
Full manuscript due:
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(Acceptance of full manuscript: 27th May 2016)
Final manuscript due:
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Venue and Time

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- Regular participant: EUR 550
- PhD students: EUR 400

Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels. Bus transport between the suggested hotels and the event location will be provided.

Further information

Further information can be found at the MSSCE 2016 event website;
www.conferencemanager.dk/MSSCE2016/7concrete-with-scm---conference.html

- or you may contact the segment responsible:
Ole Mejlhede Jensen
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.SCM@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

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- Moisture in Materials and Structures
- Concrete with Supplementary Cementious Materials
- Frost Action in Concrete
- Fresh Concrete
- Clay and Shale
- Cold Region Engineering
- Building Materials and Indoor Environment
- Building Information Modelling in Civil Engineering

Participants may have a background as university researchers, PhD students, or industry specialists. The conference language is English.

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

RILEM Week 2016

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Financial sponsors

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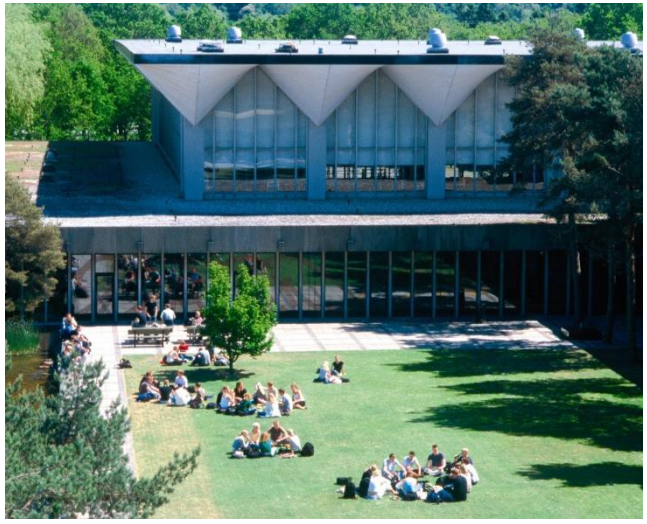

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Conference segment on

Frost action in concrete

Lyngby, Denmark,

22nd-23rd August

2016 Call for papers

Organizing committee

Marianne Tange Hasholt, Katja Fridh

Scientific committee

R. Doug Hooton, Katja Fridh,
Marianne Tange Hasholt

Sponsored by

RILEM
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Conference segment contents

Frost deterioration is an aesthetical problem, but the durability aspect is even more important, as this can jeopardise the structural integrity of buildings, infrastructure facilities, etc.

Despite research in this field has been ongoing since the 1930'es, the mechanism(s) leading to frost damage is still not fully understood. There is still a need for both basic research and practical solutions to the challenges encountered in the field. This conference segment intends to be a forum for presentations of recent research and discussions on e.g. how current knowledge can be implemented in test standards. Contributions to the conference segment may be within - but are not limited to – the topics:

- Frost at early age
- Methods for testing concrete frost resistance
- Air void analysis
- Frost damage mechanisms
- Modelling of frost action
- Experimental observations
- Experience from field exposure

Publication dates

Submissions for conference presentation and publication in reviewed proceedings need to adhere to the following deadlines:

Abstract due:
29th January 2016
(Acceptance of abstract: 8th March 2016)
Full manuscript due:
21st March 2016
(Acceptance of full manuscript: 27th May 2016)
Final manuscript due:
8th July 2016

Abstracts and papers should be submitted through the conference home page:
www.conferencemanager.dk/MSSCE2016/call-for-papers.html

Venue and Time

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Registration, price and accommodation

The deadline for conference registration is Friday, 8th July 2016 through the conference website.

The conference fee covers both participation in the MSSCE 2016 segment i.e. Frost action in Concrete in addition to admission to the other conference segments (22-24 august). It includes conference proceedings, option to present at the registered segment, refreshments, lunches, conference opening, conference dinner and bus transport.

- Regular participant: EUR 550
- PhD students: EUR 400

Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels. Bus transport between the suggested hotels and the event location will be provided.

Further information

Further information can be found at the MSSCE 2016 event website;
www.conferencemanager.dk/MSSCE2016/8-frost-act-in-concrete-conf.html

- or you may contact the segment responsible:
Marianne Tange Hasholt
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.Frost@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

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- Reliability, Safety and Value of Information
- Service life of cement-based materials
- Historical masonry
- Electrochemistry in civil engineering
- Moisture in materials and structures
- Concrete with supplementary cementitious mater.
- Frost action in concrete
- Fresh concrete
- Clay and Shale
- Cold region engineering
- Building materials and indoor environment
- BIM in Civil Engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

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RILEM Week 2016

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Scientific sponsor

RILEM is scientific sponsor of the conference along with the Technical University of Denmark, Department of Civil Engineering.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Conference segment on

Fresh Concrete

Lyngby, Denmark, 21-24 August 2016

Call for papers

Organizing committee

L. N. Thrane, C. Pade, O. Svec, N. Roussel

Scientific committee

P. Billberg, E. Fairbairn, L. Ferrara, K. Khayat, C. V. Nielsen, V. Mechtcherine, S. Smeplass, J. Wallevik, M. Sonebi, S. Grunewald, O. Svec, N. Roussel

Sponsored by

RILEM
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Conference segment contents

Knowledge and understanding of the fresh concrete properties, the casting process and the development in early age properties of concrete can contribute to improved design, execution planning and quality control ultimately resulting in higher quality of the final concrete structure. For instance, numerical, analytical and empirical based simulation tools are increasingly being used as a valuable supplementary tool in the execution phase of concrete structures and serve as an efficient means towards achieving environmentally friendly and cost effective concrete structures. The conference segment will serve as a platform for dissemination of state-of-the-art knowledge.

Contributions to the conference segment may be within – but are not limited to – the following topics:

- Mix design
- Constituent materials
- Flow of fresh concrete
- Rheology of fresh concrete
- Segregation of aggregate
- Formwork pressure
- Thixotropy
- Fiber distribution
- Fiber orientation
- Quality control
- Temperature development
- Stress development

Participants may have a background as university researchers, PhD students, or industry specialists. The conference language is English.
In connection to the scientific presentations, this segment will include a visit to the concrete lab at the Danish Technological Institute and one of the major construction sites in downtown Copenhagen.

Publication dates

Submissions for conference presentation and publication in reviewed proceedings need to adhere to the following deadlines:

Abstract due:
8 January 2016
(Acceptance of abstract: 29 January 2016)
Full manuscript due:
21 April 2016
(Acceptance of full manuscript: 27 May 2016)
Final manuscript due:
8 July 2016

Papers should be submitted through EASYCHAIR
http://www.conferencemanager.dk/MSSCE2016/call-for-papers.html

Venue and Time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The conference segment will take place 21-24 August 2016, starting with a common conference opening in the late afternoon of 21 August. The conference segment will be preceded by several DTU-RILEM Doctoral Courses 15-19 August 2016 on topics close to the conference segment.

Technical tours and social activities

Tours are planned to take place on 21 & 25 August. The tours will involve places of technical and societal interest inside and outside the greater Copenhagen area. The social activities during the conference will include a conference opening reception, a guided Copenhagen city walk and a conference dinner in down-town Copenhagen.

Registration, costs and accommodation

The deadline for event registration is Friday, 8th July 2016 through the conference website. The conference fee covers both participation in the MSSCE 2016 segment i.e. Fresh Concrete in addition to admission to the other conference segment. It includes conference proceedings, option to present at the registered segment, refreshments, lunches, conference opening, conference dinner and bus transport.

- Regular participant: EUR 550
- PhD students: EUR 400

Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels. Bus transport between the suggested hotels and the event location will be provided.
Further information can be found at the home page of the general event
http://www.conferencemanager.dk/MSSCE2016/9fresh-concrete.html
- or you may contact the segment responsible:
Lars Nyholm Thrane, Danish Technological Institute. MSSCE2016.Fresh@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

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- Frost action in concrete
- Fresh Concrete
- Clay and Shale
- Cold Region engineering
- Building materials and indoor environment
- BIM in civil engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

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Scientific sponsor

RILEM is scientific sponsor of the conference along with the Technical University of Denmark, Department of civil Engineering.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Workshop

Cold Region Engineering

Lyngby, Denmark, 23-24 August 2016

Call for papers

Organizing committee

Lisbeth M. Ottosen
Thomas Ingeman-Nielsen,
Tove Lading
ARTEK – Arctic Technology Center, DTU Byg

Sponsored by

RILEM
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

ARCTIC TECHNOLOGY CENTRE

rilem

DTU

Workshop contents

The overall topic of this workshop is research and practical experiences in cold regions engineering. Cold regions are part of the earth system characterized by the presence of snow and ice at least a part of the year and include both polar and sub-polar regions. Such harsh climate strongly affects construction and building technology, and in this workshop a broad view is taken. In addition a more focused geographical focus will be on engineering in Greenland. The topics are related to buildings, constructions and transportation infrastructure on land and in the arctic marine environment.

Contributions to the workshop may be within – but are not limited to – the following topics:

- Innovative approaches to adapt conventional building and construction technologies to cope with the cold climate
- Physical constraints for climate adaptation engineering
- Climatic effects on mechanical properties of snow, ice, soil and rock
- Buildings designed specifically for cold regions
- Renovation of residences in cold climate highlighting both energy consumption and indoor environment
- Durability of construction materials in cold climate
- Arctic costal and marine structures

Dates

Submissions for workshop presentation and publication in reviewed proceedings need to adhere to the following deadlines:

Abstract due:
29th January 2016
(Acceptance of abstract: 8th March 2016)
Full manuscript due:
21st March 2016
(Acceptance of full manuscript: 27 May 2016)
Final manuscript due:
8 July 2016

(if you require an extended deadline please contact the segment leader directly by e-mail)

Abstracts and papers should be submitted through EASYCHAIR the online submission system on the MSSCE2016 website.
http://www.conferencemanager.dk/MSSCE2016/call-for-papers.html

Venue and Time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The conference workshop will take place 23-24 August 2016.

Registration, price and accommodation

The deadline for workshop registration is Friday, 8th July 2016 through the MSSCE2016 website. The workshop fee covers participation in the Cold Region Engineering workshop and includes refreshments and lunches.
Workshop participant: EUR 150

With option to participate in full conference at the Regular partipant price of EUR 550.

Further information

Further information can be found at the MSSCE2016 website
http://www.conferencemanager.dk/MSSCE2016/11-cold-regions-engineering-conf.html

- or you may contact the segment responsible:
Lisbeth M. Ottosen
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.Cold@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

In the period 15-29 August a number of doctoral course and conference segments will take place at the Technical University of Denmark under the common umbrella MSSCE 2016. The conference segment described in this folder is part of this major event. MSSCE 2016 includes the following segments:

- Innovation of Teaching in Materials and Structures
- Reliability, Safety and Value of Information
- Service Life of Cement-based Materials and Structures
- Historical Masonry
- Electrochemistry in Civil Engineering
- Moisture in Materials and Structures
- Concrete with Supplementary Cementious Materials
- Frost Action in Concrete
- Fresh Concrete
- Clay and Shale
- Cold Region Engineering
- Building Materials and Indoor Environment
- Building Information Modelling in Civil Engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

The Knud Højgaard Foundation and the Larsen & Nielsen foundation are financially sponsoring this event. The aim of the foundations includes promotion of research, development and teaching within the construction area.

RILEM Week 2016

RILEM is the international union of laboratories and experts in construction materials, systems, and structures. RILEM has the aim to promote scientific cooperation. The event described in this folder runs in conjunction with the Annual RILEM Week 2016 (21-24 Aug 2016). The RILEM Week is the highlight of the RILEM calendar each year and includes meetings in many of RILEM's technical and administrative committees. More information about RILEM can be found at www.rilem.net

Scientific sponsor

RILEM is scientific sponsor of the conference along with the Technical University of Denmark, Department of civil Engineering.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Conference segment on

BIM in Civil Engineering
- Open Data Standards in Civil Engineering

Lyngby, Denmark,
22nd-23rd August 2016
Call for papers

Organizing committee

J. Karlshøj

Scientific committee

E. Hjelseth
J. Karlshøj
A. Kiviniemi

Sponsored by

RILEM
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Conference segment contents

The conference segment will focus on the potential for, and challenges in, adopting open data standards in civil engineering. For decades, the civil engineering domain has been a frontrunner in adopting IT not only for design tasks but also for subsequent production on site with machine guidance. However, the industry still faces challenges in sharing and integrating digital data from different sources during the lifecycle of the facilities.

Several research and development initiatives have been started at the global, regional and national levels to try to overcome the challenges. The issues to be addressed include a lack of semantic consensus, incompatible data models, the need for geo referencing, the management of data from different data sources, access rights, information delivery specifications and legislation.

As it become more common to use or mandate delivery of data in open format there is an increasing demand for knowledge on open BIM in the construction industry.

The conference will focus on open data standards and especially training and educational in open standards at architectural and engineering educations. All the participants are encouraged to present and share educational materials at the conference and subsequently. DTU is offering that general or individual sessions can be video recorded.

Participants may have a background as university researchers, PhD students, or industry specialists. The conference language is English.

Publication dates

Submissions for conference presentation and publication in reviewed proceedings need to adhere to the following deadlines:

Abstract due:
29 January 2016
(Acceptance of abstract: 8th March 2016)
Extended abstract and full manuscript due:
21 March 2016
(extended deadline 21 April)
(Acceptance of full manuscript: 27 May 2016)
Final manuscript due:
8th July 2016

Abstracts and papers should be submitted through the conference home page: www.conferencemanager.dk/MSSCE2016/call-for-papers.html

Venue and Time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The conference segment will take place 23-24 August 2016, starting with a common conference opening in the late afternoon of 21 August. The conference segment will be preceded by a DTU-RILEM Doctoral Course 8-19 August 2016 on different conference topics.

Technical tours and social activities

Tours are planned to take place on 21st and 25th August. The tours will involve places of technical and societal interest inside and outside the greater Copenhagen area. The social activities during the conference will include a conference opening reception and a conference dinner.

Registration, price and accommodation

The deadline for workshop registration is Friday, 8th July 2016 through the MSSCE2016 website. The workshop fee covers participation in the Cold Region Engineering workshop and includes refreshments and lunches.
Workshop only delegate: EUR 150
Conference – regular participant: EUR 550

Further information

Further information can be found at website www.conferencemanager.dk/MSSCE2016/13bim-workshop.html
- or you may contact the segment responsible:
Jan Karlshøj
Department of Civil Engineering - DTU
MSSCE2016.BIM@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

In the period 15-29 August a number of doctoral course and conference segments will take place at the Technical University of Denmark under the common umbrella MSSCE 2016. The conference segment described in this folder is part of this major event. MSSCE 2016 includes the following segments:

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- Moisture in Materials and Structures
- Concrete with Supplementary Cementious Materials
- Frost Action in Concrete
- Fresh Concrete
- Clay and Shale
- Cold Region Engineering
- Building Materials and Indoor Environment
- Building Information Modelling in Civil Engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

The Knud Højgaard Foundation and the Larsen & Nielsen foundation are financially sponsoring this event. The aim of the foundations includes promotion of research, development and teaching within the construction area.

RILEM Week 2016

RILEM is the international union of laboratories and experts in construction materials, systems, and structures. RILEM has the aim to promote scientific cooperation. The event described in this folder runs in conjunction with the Annual RILEM Week 2016 (21-24 Aug 2016). The RILEM Week is the highlight of the RILEM calendar each year and includes meetings in many of RILEM's technical and administrative committees. More information about RILEM can be found at www.rilem.net

Scientific sponsor

RILEM is scientific sponsor of the overall conference. This segment of the conference will partly be sponsored by the International Centre for Indoor Environment and Energy (ICIEE.DTU), Danish Institute of Technology (DTI), Danish Building Research Institute (SBi.AAU) and COST Action TU1301, NORM for Building materials

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Conference segment on

Building Materials and Indoor Environment

Lyngby, Denmark, 21st-24th August 2016

Call for papers

Organizing committee

Pawel Wargocki, Lisbeth Ottesen, Bjarne W. Olesen, Technical University of Denmark
Thomas Witterseh, Danish Institute of Technology
Lars Gunnarsen, Danish Building Research Institute (SBi), Aalborg University

Scientific committee

To be announced

Sponsored by

COST Action TU1301
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Conference segment contents

Building materials have a significant influence on the indoor environmental quality. Emissions from materials will influence the indoor air quality and the requirements for ventilation. Other indoor environmental parameters like acoustic and lighting conditions are influenced by the surface materials used. The conference segment will serve as a platform for dissemination of state-of-the-art knowledge.

Contributions to the conference segment should deal with theory, modelling, or results from experimental investigations with relation to the influence of building materials on the indoor environmental quality. Contributions to the conference segment may be within – but are not limited to – the following topics:

- Emissions from materials
- Indoor climate Testing of materials
- Test standards
- Certification
- Dynamic calculations of material emissions
- Air Cleaning Materials
- Air Cleaning
- Phase change materials
- Acoustic
- Lighting

Participants may have a background as university researchers, PhD students, consultants, architects or producer. The conference language is English.

Publication dates

Submissions for conference presentation and publication in reviewed proceedings need to adhere to the following deadlines:

Abstract due:
29th January 2016
(Acceptance of abstract: 8th March 2016)
Full manuscript due:
21st March 2016
(Acceptance of full manuscript: 27th May 2016)
Final manuscript due:
8th July 2016

Abstracts and papers should be submitted through the conference home page: www.conferencemanager.dk/MSSCE2016/call-for-papers.html

Venue and Time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The conference segment will take place 23-24 August 2016, starting with a common conference opening in the late afternoon of 21 August. The conference segment will be preceded by a DTU-RILEM Doctoral Course 8-19 August 2016 on different conference topics.

Technical tours and social activities

Tours are planned to take place on 21st and 25th August. The tours will involve places of technical and societal interest inside and outside the greater Copenhagen area. The social activities during the conference will include a conference opening reception and a conference dinner.

Registration, price and accommodation

The deadline for conference registration is Friday, 8th July 2016 through the conference website. The conference fee covers participation in the MSSCE 2016 conference segment of your choice and includes conference proceedings, refreshments, lunches, conference opening, conference dinner and bus transport, option to present at the registered segment

- Regular participant: EUR 550
- PhD students: EUR 400

Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels. Bus transport between the suggested hotels and the event location will be provided.

Further information

Further information can be found at the MSSCE2016 website
http://www.conferencemanager.dk/MSSCE2016/9simulation-tools-used-in-the-execution-of-concr-structures-conf.html

- or you may contact the segment responsible:
Bjarne W. Olesen
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.Indoor@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

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- Electrochemistry in Civil Engineering
- Moisture in Materials and Structures
- Concrete with Supplementary Cementitious Mat.
- Frost Action in Concrete
- Fresh Concrete
- Clay and Shale
- Cold Region Engineering
- Building Materials and Indoor Environment
- Building Information Modelling in Civil Engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

COST TU1404, the Knud Højgaard Foundation and the Larsen & Nielsen foundation are financially sponsoring this event. The aim of the sponsors includes promotion of research, development and teaching within the construction area.

RILEM Week 2016

RILEM is the international union of laboratories and experts in construction materials, systems, and structures. RILEM has the aim to promote scientific cooperation. The event described in this folder relates to the Annual RILEM Week 2016 (21-24 Aug 2016). The RILEM Week is the highlight of the RILEM calendar each year and includes meetings in many of RILEM's technical and administrative committees. More information about RILEM can be found at www.rilem.net

Scientific sponsor

COST action TU1404 "Towards the next generation of standards for service life of cement-based materials and structures" and RILEM are the scientific sponsors of the doctoral course segment. All doctoral students registered in the course are offered a 3-year free RILEM membership.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Doctoral course segment on

Service life of Cement-based Materials and structures

Lyngby, Denmark, 15-19 August 2016

Organizers

O.M. Jensen, K. Kovler, S. Staquet, M. Azenha

Teachers

S. Staquet, M. Azenha, O.M. Jensen, K. Kovler
D. Schlicke, B. Delsaute, J.Granja

Sponsored by

COST Action TC1404, RILEM EAC
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark
Ingeborg og Leo Dannins Legat for videnskabelig forskning

Scope of doctoral course segment

Service life of cement-based materials is a topic of substantial importance since the maintenance of concrete structures every year necessitate massive investments in rehabilitation and repair. However, constantly ongoing research refines our theoretical knowledge about why deterioration takes place, models for prediction of deterioration are improved, and new measures to prevent deterioration processes appear and extend the service life of concrete structures. This course brings you up-to-date on this important area.

The program of the doctoral course has intricate connections with the objectives of TU1404, with particular emphasis on subjects related to Workgroup 1 'Testing of cement based materials and RRT+' (cf. www.tu1404.eu).

Course contents

The course will cover important topics related to service life of cement-based materials and structures with a focus on advanced experimental testing methods in the framework of the RRT+ including:

- Hydration and microstructure of cement-based materials
- Calorimetry, heat release and setting
- Elastic properties (Ultrasonic wave transmission and vibration based methods)
- Free shrinkage in autogenous and drying conditions
- Creep and relaxation
- Evolution of mechanical properties since very early age
- Nature of the binder on the sensitivity to cracking in case of restrained shrinkage (Ring test)
- Thermo-mechanical and macroscopic modelling of concrete structures

The course consists of lectures including also two hands-on laboratory sessions with the application of six advanced experimental testing techniques, two exercise sessions dedicated to numerical simulations and comparisons with experimental data. All the necessary notes will be provided before the course.

Work load, evaluation and certificates

The total work load is approximately 140 hours corresponding to 5 ECTS credits, including the contact time at DTU, the preparatory reading assignments given before the course, the preparation of a poster presentation at the start of the course, and the oral presentation at the end of the course. Certificates will be issued based on active participation in the entire course and the final evaluation.

Participants

Participants are expected to have a basic knowledge of concrete technology. The level and form of the course are aimed at doctoral students, but both final year master students and practicing engineers may also benefit from course participation. All lectures will be given in English.

Financial support - Grants

COST Action TU1404 will predictably offer 20 grants of 650€ to support the fee of the Doctoral Training School as well as travelling and lodging expenses. All interested candidates should check the application procedure that will soon be available in the website of COST TU1404.

Registration, price and accommodation

The deadline for registration in the Doctoral Training School is Friday, 8th July 2016 through the conference website. A course fee of EUR 250 applies for the entire course. The registration fee includes entrance to the lectures and associated laboratory activities, a technical tour (or keynote lecture), handouts, coffee breaks, welcome barbecue and closure dinner. Participants will be responsible for travel, meals, and accommodation.

Further information

Further information on available grants and contacts can be found in the homepages of the main event and of the COST Action TU1404:
www.conferencemanager.dk/MSSCE2016
www.tu1404.eu

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

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- Historical Masonry
- Electrochemistry in Civil Engineering
- Moisture in Materials and Structures
- Concrete with Supplementary Cementious Materials
- Frost Action in Concrete
- Fresh Concrete
- Clay and Shale
- Cold Region Engineering
- Building Materials and Indoor Environment
- Building Information Modelling in Civil Engineering

More information about MSSCE 2016 can be found at www.conferencemanager.dk/MSSCE2016

Financial sponsors

The Knud Højgaard Foundation and the Larsen & Nielsen foundation are financially sponsoring this event. The aim of the foundations includes promotion of research, development and teaching within the construction area.

RILEM Week 2016

RILEM is the international union of laboratories and experts in construction materials, systems, and structures. RILEM has the aim to promote scientific cooperation. The event described in this folder relates to the Annual RILEM Week 2016 (21-24 Aug. 2016). The RILEM Week is the highlight of the RILEM calendar each year and includes meetings in many of RILEM's technical and administrative committees. More information about RILEM can be found at www.rilem.net

Scientific sponsor

RILEM is the main scientific sponsor of the doctoral course segment through the RILEM Educational Activities Committee, EAC. Since its formation in 2006 RILEM EAC has sponsored about 100 high-level courses all over the world. All doctoral students registered in the course are offered a 3-year free RILEM membership.

Additional scientific sponsors are:

- RILEM TC-248-MMB on Methods of Measuring Moisture in Building Materials and Structures,
- IABP, International Association of Building Physics,
- Department of Civil Engineering, Technical University of Denmark,
- Moisture Research Centre, Lund University.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Doctoral course segment on

Moisture in Materials and Structures

Lyngby, Denmark, 15-19 & 25-29 August 2016

Organizers

K. Kielsgaard Hansen, L.-O. Nilsson, C. Rode

Instructors

Kurt Kielsgaard Hansen
Lars-Olof Nilsson
Carsten Rode
plus
External Instructors
to be decided

Sponsored by

RILEM EAC
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark
Moisture Research Centre, Lund, Sweden

Scope of doctoral course segment

Properties and performance of building materials and structures are to a large extent influenced by the moisture conditions in the materials. Prediction and measurement methods are essential and must be based on a thorough understanding of moisture theory, quantified material properties and boundary conditions. The doctoral course segment will bring you up to date on this important area.

Course contents

The course will cover the most important topics in relation to moisture in materials and structures including:

- Thermodynamics of moisture
- Moisture fixation in materials
- Moisture transport in materials and structures
- Experimental methods
- Moisture measuring methods
- Prediction methods
- Field applications
- Coupled transport phenomena

The course consists of lectures, written exercises and hands-on laboratory exercises. Notes will be provided before the course.

Work load, evaluation and certificates

The total work load is approximately 140 hours corresponding to 5 ECTS points, including the period at DTU, preparatory reading given before the course, and preparation of a poster presentation for the course. Certificates will be issued based on active participation in the entire course.

Participants

Participants are expected to have basic knowledge of material science and building physics. Level and form of the course is aimed at doctoral students, but both final year master students and practicing engineers may also benefit from course participation. All lectures will be given in English.

Venue and time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The doctoral course segment will take place 15-19 and 25-29 August 2016. The course “surrounds” the international RILEM conference segment on Moisture in materials and structures, 21-24 August 2016.

Time slots are allocated at the conference for PhD-project presentations by participants in the Doctoral Course. Participants are encouraged to use this opportunity to broaden their contacts within the research community and to advertise their PhD projects.

Registration, price and accommodation

The deadline for doctoral course registration is Sunday, 1 May 2016 through the conference website. There is a limit of 24 participants. A course fee of EUR 250 applies for the entire course. The course fee covers participation in the doctoral course part of MSSCE 2016 and includes study material, refreshments, a barbecue, a dinner and travel to Lund University during the course. Participants will be responsible for travel, meals, and accommodation. Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels.

Further information

Further information can be found at the home page of the general event
www.conferencemanager.dk/MSSCE2016
- or you may contact the course responsible:
Kurt K. Hansen, MSSCE2016.Moisture@byg.dtu.dk
Department of Civil Engineering
Technical University of Denmark

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

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- Historical Masonry
- Electrochemistry in Civil Engineering
- Moisture in Materials and Structures
- Concrete with Supplementary Cementious Materials
- Frost Action in Concrete
- Fresh Concrete
- Clay and Shale
- Cold Region Engineering
- Building Materials and Indoor Environment
- Building Information Modelling in Civil Engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

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RILEM Week 2016

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Scientific sponsor

RILEM is scientific sponsor of the doctoral course segment through the RILEM Educational Activities Committee, EAC. Since its formation in 2006 RILEM EAC has sponsored about 100 high-level courses all over the world. All doctoral students registered in the course are offered a 3-year free RILEM membership.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Doctoral course segment on

Concrete with Supplementary Cementitious Materials

Lyngby, Denmark, 15-19 August 2016

Organizers

O.M. Jensen, K. Kovler, N. de Belie

Teachers

TBA

Sponsored by

RILEM EAC
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Scope of doctoral course segment

Hydraulic and pozzolanic industrial by-products, natural resources and societal waste are increasingly being used as valuable, supplementary cementitious materials (SCMs) in concrete. Materials such as fly ash, blastfurnace slag, silica fume, calcined clay and limestone are important to obtain concrete with improved and targeted properties and not the least to make the construction industry more sustainable and less CO_2-intensive. The doctoral course segment will bring you up-to-date on this important area.

Course contents

The course will cover the most important topics in relation to the use of SCMs in concrete technology including:

- Properties of SCM
- Mix proportions
- Fresh concrete
- Hydration reactions
- Hardened concrete
- Durability aspects

The course consists of lectures, written exercises and hands-on laboratory exercises. Notes will be provided before the course.

Work load, evaluation and certificates

The total work load is approximately 140 hours corresponding to 5 ECTS points, including the period at DTU, preparatory reading given before the course, and preparation of a poster presentation for the course. Certificates will be issued based on active participation in the entire course.

Participants

Participants are expected to have a basic knowledge of concrete technology. Level and form of the course is aimed at doctoral students, but both final year master students and practicing engineers may also benefit from course participation. All lectures will be given in English.

Venue and time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The doctoral course segment will take place 15-19 August 2016. The course precedes the international RILEM conference segment on Concrete with supplementary cementitious materials, 21-24 August 2016.

At the conference time slots are allocated for PhD-project presentations by participants on the Doctoral Course. Participants at the doctoral course are encouraged to use this opportunity to broaden their contacts within the research community and to advertise their PhD projects.

Registration, price and accommodation

The deadline for conference registration is Friday, 8 July 2016 through the conference website. A course fee of EUR 250 applies for the entire course. The course fee covers participation in the doctoral course part of MSSCE 2016 and includes study material, refreshments, a barbecue and a dinner. Participants will be responsible for travel, meals, and accommodation. Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels.

Further information

Further information can be found at the home page of the general event
www.conferencemanager.dk/MSSCE2016
- or you may contact the segment responsible:
Ole Mejlhede Jensen
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.SCM@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

In the period 15-29 August a number of doctoral course and conference segments will take place at the Technical University of Denmark under the common umbrella MSSCE 2016. The doctoral course segment described in this folder is part of this major event. MSSCE 2016 includes the following segments:

- Innovation of teaching in materials and structures
- Reliability and safety
- Value of information in structural health monitoring
- Service life of cement-based materials and struct
- Historical masonry
- Wood science
- Electrochemistry in civil engineering
- Moisture in materials and structures
- Concrete with supplementary cementitious mater.
- Frost action in concrete
- Sim. tools in the execution phase of concr. struct.
- Biobased building materials
- Soils, rocks and geotechnical engineering
- Cold region engineering
- Building materials and indoor environment
- BIM in civil engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

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RILEM Week 2016

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Scientific sponsor

This doctoral course will partly be sponsored by the International Centre for Indoor Environment and Energy (ICIEE.DTU), Danish Institute of Technology (DTI), Danish Building Research Institute (SBi.AAU) and COST Action TU1302, NORM for Building material.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Doctoral course segment on

Building Materials and Indoor Environment

Lyngby, Denmark, 21-24 August 2016

Call for papers

Organizing committee

Pawel Wargocki, Lisbeth Ottesen, Bjarne W. Olesen, Technical University of Denmark
Thomas Witterseh, Danish Institute of Technology
Lars Gunnarsen, Danish Building Research Institute (SBi), Aalborg University

Scientific committee

To be announced

Sponsored by

COST Action TU1302
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Scope of doctoral course segment

Building materials have a significant influence on the indoor environmental quality. Emissions from materials will influence the indoor air quality and the requirements for ventilation. Other indoor environmental parameters like acoustic and lighting conditions are influenced by the surface materials used.

Course contents

The course will cover the most important topics in relation to the influence of building materials on the indoor environment including:

- General introduction to the indoor environment (comfort, air quality, acoustic, lighting)
- Emission from building materials (particles, gasses)
- Air Cleaning (absorption, chemical reactions)
- Tools for predicting the effect of building materials on the indoor environment.
- Testing and certification of building materials (chemical, odour)

The course consists of lectures, written exercises and hands-on laboratory exercises. Notes will be provided before the course.

Work load, evaluation and certificates

The total work load is approximately 140 hours corresponding to 5 ECTS points, including the period at DTU, preparatory reading given before the course, and preparation of a poster presentation for the course. Certificates will be issued based on active participation in the entire course.

Participants

Participants are expected to have a basic knowledge of indoor environment and building materials). Level and form of the course is aimed at doctoral students, but both final year master students and practicing engineers may also benefit from course participation. All lectures will be given in English.

Venue and time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The doctoral course segment will take place 15-19 August 2016. The course precedes the international RILEM conference segment on Building materials and Indoor Environment, 21-24 August 2016.

At the conference time slots are allocated for PhD-project presentations by participants on the Doctoral Course. Participants at the doctoral course are encouraged to use this opportunity to broaden their contacts within the research community and to advertise their PhD projects.

Registration, costs and accommodation

Participants should register before 8 July 2016 through the event home page. A course fee of EUR 250 applies for the entire course. The course fee covers participation in the doctoral course part of MSSCE 2016 and includes study material, refreshments, a barbecue and a downtown dinner. Participants will be responsible for travel, meals, and accommodation. Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels.

Further information

Further information can be found at the home page of the general event
www.conferencemanager.dk/MSSCE2016
- or you may contact the segment responsible:

Bjarne W. Olesen
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.Indoor@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

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- Clay and Shale
- Cold region engineering
- Building materials and indoor environment
- BIM in Civil Engineering

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Financial sponsors

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Scientific sponsor

RILEM is scientific sponsor of the doctoral course segment. All doctoral students registered in the course are offered a 3-year free RILEM membership.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Doctoral course segment on

BIM in Civil Engineering – focusing on open standards

Lyngby, Denmark, 15-19 August 2016

Organizer

J. Karlshøj

Teachers

J. Karlshøj
TBA

Sponsored by

RILEM EAC
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Scope of doctoral course segment

The purpose of the course is to demonstration the correlation between content and methods developed by buildingSMART for identification, modelling and implementation of digitally supported information flow between the parties involved in creating and operating buildings and structures in the built environment.

Course contents

The course covers the following topics:

- Examination of the data model Industry Foundation Classes (IFC) and the Express language in which the data model is defined.
- Review of the principles of the Model View Definition (MVD) that is used to identify the subset that is implemented in software products.
- Through the use of Information Delivery Manual (IDM) it is described how user requirements can be recorded, structured and formalized.
- The buildingSMART Data Dictionary (bSDD) is reviewed and it is explained how the content from the dictionary can be operationalized and extended.
- Review of the principles in buildingSMART's Software Certification procedure and explanation of the concept for Data Validation based on the use of mvdXML.
- Demonstration of an IFC Model Server that is tested through exercises.

The course consists of lectures, written exercises and hands-on exercises in using buildingSMART deliveries.

Work load, evaluation and certificates

The total work load is approximately 140 hours corresponding to 5 ECTS points, including the period at DTU, preparatory reading given before the course, and preparation of a case study for the course. Certificates will be issued based on active participation in the entire course.

Participants

Participants are expected to have a basic knowledge of BIM. Level and form of the course is aimed at doctoral students, but both final year master students and practicing engineers may also benefit from course participation. All lectures will be given in English.

Venue and time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The doctoral course segment will take place 15-19 August 2016. The course precedes the international RILEM conference segment on Building Information Modeling, 21-23 August 2016.

At the conference time slots are allocated for PhD-project presentations by participants on the Doctoral Course. Participants at the doctoral course are encouraged to use this opportunity to broaden their contacts within the research community and to advertise their PhD projects.

Registration, price and accommodation

The deadline for event registration is Friday, 8th July 2016 through the conference website. A course fee of EUR 250 applies for the entire course. The course fee covers participation in the doctoral course part of MSSCE 2016 and includes study material, refreshments, a barbecue and a dinner. Participants will be responsible for travel, meals, and accommodation. Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels.

Further information

Further information can be found at the home page of the general event
http://www.conferencemanager.dk/MSSCE2016/13bim-dc.html
- or you may contact the segment responsible:

Jan Karlshøj
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.BIM@byg.dtu.dk

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

In the period 15-29 August a number of doctoral course and conference segments will take place at the Technical University of Denmark under the common umbrella MSSCE 2016. The doctoral course segment described in this folder is part of this major event. MSSCE 2016 includes the following segments:

- Innovation of teaching in materials and structures
- Reliability, Safety and Value of Information
- Service life of cement-based materials and struct
- Historical masonry
- Electrochemistry in Civil Engineering
- Moisture in materials and structures
- Concrete with supplementary cementitious mater.
- Frost action in concrete
- Sim. tools in the execution phase of concr. struct.
- Clay and Shale
- Cold region engineering
- Building materials and indoor environment
- BIM in civil engineering

More information about MSSCE 2016 can be found at
www.conferencemanager.dk/MSSCE2016

Financial sponsors

The Knud Højgaard Foundation and the Larsen & Nielsen foundation are financially sponsoring this event. The aim of the foundations includes promotion of research, development and teaching within the construction area.

RILEM Week 2016

RILEM is the international union of laboratories and experts in construction materials, systems, and structures. RILEM has the aim to promote scientific cooperation. The event described in this folder relates to the Annual RILEM Week 2016 (21-24 Aug 2016). The RILEM Week is the highlight of the RILEM calendar each year and includes meetings in many of RILEM's technical and administrative committees. More information about RILEM can be found at www.rilem.net

Scientific sponsor

RILEM is scientific sponsor of the doctoral course segment through the RILEM Educational Activities Committee, EAC. Since its formation in 2006 RILEM EAC has sponsored about 100 high-level courses all over the world. All doctoral students registered in the course are offered a 3-year free RILEM membership.

Materials, Systems and Structures in Civil Engineering – MSSCE 2016

Doctoral course segment on

Clay and shale

Lyngby, Denmark, 15-19 August 2016

Organizers

I.L. Fabricius, Varvara Zania, Louise Belmonte

Teachers

E. Makovicky, A Revil, R. Holt, L. Andersen, F.Engstrøm, N.Foged,

Sponsored by

RILEM EAC
DTU Byg
Knud Højgaard Foundation, Denmark
Larsen & Nielsen Foundation, Denmark

Scope of doctoral course segment

Properties of clay and shale as substrate for construction is a field with many question marks. A lack of physical and chemical understanding of properties of these rocks is also critical in the context of sealing membranes and seals in connection with subsurface storage of heat, CO_2, and hydrocarbons. Reservoir properties of shale itself is also a focus of debate. The doctoral course segment will bring you up-to-date on this important area.

Lecture program

Date	Lecturer	Institution /Company	Course
Monday 15th August	Prof. Emil Makovicky	University of Copenhagen	Clay mineral structure
Tuesday 16th August	Prof. André Revil	University of Savoie, Mont Blanc	Clay physical properties
Wednesday 17th August	Prof.Lars Vabbersgaard Andersen	University of Ålborg	Constitutive modelling of clay
Thursday 18th August	Prof.Rune Holt	Norweigan University of Science and Technology	Shale Rock Physics & Rock Mechanics
Friday 19th August	Prof.Niels Foged	Technical University of Denmark	Fehmarn Belt Fixed Link
Friday 19th August	Dr.Finn Engstrøm	Mærsk Oil	Petro-physical intepretation of shales

Course contents

The course will cover the most important topics in relation to properties of shale and clay including: Elasticity, Pore collapse, Creep, Fracturing, Pore water effects, Electrical properties.

Work load, evaluation and certificates

The total work load is approximately 140 hours corresponding to 5 ECTS points, including the period at DTU, preparatory reading given before the course, and preparation of a poster presentation for the course. Certificates will be issued based on active participation in the entire course.

Participants

Participants are expected to have a basic knowledge of one of the disciplines: geotechnics, petrophysics, and rock physics. Level and form of the course is aimed at doctoral students, but both final year master students and practicing engineers may also benefit from course participation. All lectures will be given in English.

Venue and time

The general venue of the event is the Technical University of Denmark, Lyngby campus. The doctoral course segment will take place 15-19 August 2016. The course precedes the international RILEM conference, 21-24 August 2016.

Registration, price and accommodation

The deadline for event registration is Friday, 8 July 2016 through the conference website. A course fee of EUR 250 applies for the entire course. The course fee covers participation in the doctoral course part of MSSCE 2016 and includes study material, refreshments, a barbecue and a dinner. Participants will be responsible for travel, meals, and accommodation. Pre-bookings of rooms have been made at hotels in central Copenhagen, however, participants need to make their own accommodation arrangements at these or other hotels.

Further information

Further information about the course can be found at the home page of the general event;
http://www.conferencemanager.dk/MSSCE2016/10-clay-and-shale-dc.html
- or you may contact the segment responsible:
Ida L. Fabricius
Department of Civil Engineering
Technical University of Denmark
MSSCE2016.SRG@byg.dtu.dk

Draft overview of timetable for MSSCE 2016 activities (21-08-16)

Date	MSSCE2016	MSSCE Doctoral Courses	RILEM Week	Technical Committee meetings
Monday 15/08/2016		**Registration 8.00-8-30** Help and Registration Desk DTU meeting center building 101		
		8:30-17:00 ***B101, B117, B118*** **MSSCE Doctoral Courses**		
		17:15-19:15 ***Grønnegården, DTU*** Barbecue		
Tuesday 16/08/2016		8:30-17:00 ***B101, B117, B118*** **MSSCE Doctoral Courses**		
Wednesday 17/08/2016		8:30-17:00 ***B101, B117, B118*** **MSSCE Doctoral Courses**		
Thursday 18/08/2016		8:30-17:00 ***B101, B117, B118*** **MSSCE Doctoral Courses**		
		18:30-21:00 ***DTU Canteen*** **Dinner**		
Friday 19/08/2016		8:30-17:00 ***B101, B117, B118*** **MSSCE Doctoral Courses**		

Sunday 21/08/2016			8:30-10:15 ***B101 Rs02*** **Educational Activities Committee(EAC)**	9:00-10:15 ***B101 Rs07*** **TC 255-FRS**	8:30-10:15 ***B101 Rs10-s11*** **TC MRP**	9:00-10:15 ***B101 Rs12-13*** **TC 248-MMB**
	10:15-10:45 Coffee Break					
			10:45-12:30 ***B101 Rs04*** **Board of Editors (BOE)**	10:45-12:00 ***B101 Rs07*** **TC 255-FRS**	10:45-11:30 ***B101 Rs10-s11*** **TC MRP**	10:45-12:30 ***B101 Rs12-13*** **TC 248-MMB**
	12:30-13:30 Lunch break					
	13:30-15:00 **Technical tour to Open Air Museum**		13:30-15:00 ***B101 Rs02*** **Development Advisory Committee (DAC)**	13:30-15:00 ***B101 Rs04*** **Technical Activities Committee(TAC)**	13:30-15:00 ***B101 Rs06*** **TC 238-SCM**	13:30-15:00 ***B101 Rs12-13*** **TC 248-MMB**
	15:00-15:30 Coffee Break					
	15:30-16:30 **Technical tour to Open Air Museum**		15:30-17:00 ***B101 Rs02*** **Development Advisory Committee (DAC)**	15:30-17:00 ***B101 Rs04*** **Technical Activities Committee(TAC)**	15:30-17:00 ***B101 Rs06*** **TC 238-SCM**	15:30-17:00 ***B101 Rs12-13*** **TC 248-MMB**
	16:00-18:00 Registration 17:00-20:00 **Official conference opening - Oticon Hall** - Building 107					
	19:00-20:00 **Conference reception buffet** - DTU Canteen - Building 101					
Monday 22/08/2016	8:30-10:15 ***B116*** **MSSCE2016 sessions and workshops**		08:30-10:15 ***B101 Rs02*** **Development Advisory Committee (DAC)**	08:30-10:15 ***B101 Rs04*** **Technical Activities Committee(TAC)**		
	10:15-10:45 Coffee Break					
	10:45-12:30 ***B116*** **MSSCE2016 sessions and workshops**		10:45-12:30 ***B101 Rs02*** **Development Advisory Committee (DAC)**	10:45-12:30 ***B101 Rs04*** **Technical Activities Committee(TAC)**		
	12:30-13:30 Lunch break					
	13:30-15:00 ***B116*** **MSSCE2016 sessions and workshops**		13:30-15:00 ***B101 Rs01*** **Development meeting (DEV)**		13:30-15.00 ***B116 R49*** **TC TRM**	
	15:00-15:30 Coffee Break					
	15:30-17:00 ***B116*** **MSSCE2016 sessions and workshops**		15:30-17:00 ***B101 Rs14*** **Bureau BUR(1)**			
	18:00-19:30 **Pancake reception at the Copenhagen City Hall**					
Tuesday 23/08/2016	8:30-10:15 ***B116*** **MSSCE2016 sessions and workshops**		8:30-10.15 ***B101 Rs14*** **Bureau BUR(2)**		8:30-10:15 ***B101 Rs10-s11*** **TC 262-SCI**	8:00-10:15 ***B101 Rs12-s13*** **TC 246-TDC**
	10:15-10:45 Coffee Break					
	10:45-12:30 ***B116*** **MSSCE2016 sessions and workshops**		10:45-12:30 ***B101 Rs14*** **Bureau BUR(2)**		10:45-12:30 ***B101 Rs10-s11*** **TC 262-SCI**	10:45-12:00 ***B101 Rs12-s13*** **TC 246-TDC**
	12:30-13:30 Lunch break					
	13:30-15:00 ***B116*** **MSSCE2016 sessions and workshops**		13:30-15:00 ***B101 Rs14*** **Bureau BUR(2)**		13:30-15:00 ***B116 R25*** **TC ASC**	
	15:00-15:30 Coffee Break					
	15:30-17:00 ***B116*** **MSSCE2016 sessions and workshops**		15:30-17:00 ***B101 Rs14*** **Bureau BUR(2)**		15:30-17:00 ***B116 R25*** **TC ASC**	
	17:30-21:00 **Conference Dinner**					
Wednesday 24/08/2016	8:30-10:15 ***B116*** **MSSCE2016 sessions and workshops**					
	10:15-10:45 Coffee Break					
	10:45-12:30 ***B116*** **MSSCE2016 sessions and workshops**		10.45-12:30 **RILEM Technical Day** Gustavo Colonnetti lectures - B116 Raud81			
	12:30-13.30 Lunch-break					
	13:30-15:00 ***B116*** **MSSCE2016 sessions and workshops**		13:30-15:00 ***B116 Raud81*** **RILEM Technical Day**			
	15:00-15:30 Coffee Break					
	15:30-17:00 ***B116*** **MSSCE2016 sessions and workshops**		15:30-17:00 ***B116 Raud81*** **General Council (GC)**			
			17:30-21:00 **RILEM Dinner - Glass hall - DTU Canteen**			
Thursday 25/08/2016		8:30-17:00 ***B118*** **MSSCE Doctoral Course (Moisture segment only)**		8:00-10:15 ***B101 Rs04-s05*** **TC 254-CMS**	9:00-10:15 ***B101 Rs02/03*** **TC CIM**	
				10.15-10.45 Coffee break		
				10:45-12:30 ***B101 Rs04-s05*** **TC 254-CMS**	10:45-12:30 ***B101 Rs02/03*** **TC CIM**	
	12:30-22:30 Technical tour to Stevns Cliffs and Roskilde Cathedral			12:30-13:30 Lunch break		
				13:30-15:00 ***B101 Rs04-s05*** **TC 254-CMS**	13:30-15:00 ***B101 Rs02/03*** **TC CIM**	12:30-15:00 ***B101 Rs07-s08*** **TC 258-AAA**
				15:00-15:30 Coffee Break		
				15:30-17:30 ***B101 Rs04-s05*** **TC 254-CMS**	15:30-16:00 ***B101 Rs02/03*** **TC CIM**	15:30-17:30 ***B101 Rs07-s08*** **TC 258-AAA**
Friday 26/08/2016		8:30-17:00 ***B118*** **MSSCE Doctoral Course (Moisture segment only)**		9:00-15:00 ***B101 Rs01- s07-s08*** **TC 258-AAA**		
Saturday 27/08/2016		8:30-19:30 ***B118*** **MSSCE Doctoral Course (Moisture segment only)**				
Sunday 28/08/2016		8:30-17:00 ***B118*** **MSSCE Doctoral Course (Moisture segment only)**				
Monday 29/08/2016		8:30-17:00 ***B118*** **MSSCE Doctoral Course (Moisture segment only)**				

MSSCE 2016 – Conference Opening

Sunday 21/8 2016

16.40	**Bus arrival from Open Air Museum and hotels**		
17.00 – 17.30 ***Location:*** *Oticon Hall Building 107 (Next to building 101)*	**Opening welcome**	**Ole Mejlhede Jensen**	**Professor, Department of Civil Engineering, Technical University of Denmark, Chair of MSSCE2016, Honorary president of RILEM**
		Niels Jørgen Aagaard	**Head of Department of Civil Engineering, Technical University of Denmark**
		Mette Glavind	**Executive Vice President, Building and Construction, Danish Technological Institute**
		Johan Vyncke	**President of RILEM, Director of research and innovation at the Belgian Building Research Institute**
17.30 – 18:20 ***Location:*** *Oticon Hall Building 107 (Next to building 101)*	**Key-note** ***Courage and insight – The art of implementation in the construction sector***	**Jan Søndergaard**	**Professor in architecture at the Royal Danish Academy of Fine Arts and partner in KHR Architects**
18.20 – 18.55 ***Location:*** *Oticon Hall Building 107 (Next to building 101)*	**Welcome drink**		
19.00 – 20.00 ***Location:*** *Canteen Building 101*	**Buffet dinner**		
20.15 ***Location:*** *Parking lot outside building 101, in the DTU central axis*	**Busses depart to hotels**		

MSSCE 2016 – Segment Programme

Monday 22/8 2016

Innovation of Teaching in Materials and Structures

	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.15* ***Location:***	No sessions			
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:***	No sessions			
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** Building 116, room 025	Innovation of Teaching in Materials and Structures	Teaching Concrete Technology to Undergraduates: An Inductive Approach	Ravindra Gettu	Per Goltermann
		Active learning strategies in reinforced concrete	Paulo Cachim	
		Learning traditional building techniques by practical work and implemented theory	Kristin Balksten and Petra Eriksson	
		Influence of introduction of e-based distance learning on student experience and performance	Pernille Erland Jensen and Janne Fritt-Rasmussen	
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* ***Location:*** Building 116, room 025	Innovation of Teaching in Materials and Structures	Innovating a classic course in concrete structures	Per Goltermann	Per Goltermann
		”From Microstructure to Service Life Design", a theoretical-practical RILEM International Workshop	Roberto Torrent, Karen Scrivener and Luis Fernández Luco.	

MSSCE 2016 – Segment Programme

Tuesday 23/8 2016

Reliability, Safety and Value of Information

	Time	Paper	Chairman
Session 1 *08.30-10.15* ***Location:*** Building 116, Room 40	08.30 – 08.50	**Monitoring the structural response of reinforced concrete poles at high-speed railway tracks due to train passings** Luise Göbel, Felix Mucha, Zouhour Jaouadi, Dmitrii Legatiuk, Igor Kavrakov, Kay Smarsly, Lars Abrahamczyk and Matthias Kraus	Sebastian Thöns
	08.55 – 09.15	**Monitoring of the prestressed concrete slabs with unbonded tendons during erection and in use** Rafal Szydlowski, Mariusz Maslak and Michal Pazdanowski.	
	09.20 – 09.40	**Reliability assessment of Saint Joseph Church in Prague based on monitoring** Jana Markova, Miroslav Sykora and Ivo Simunek	
	09.45 – 10.05	**The role of in-situ specimen measurements in appraising creep and shrinkage model predictions** Helder Sousa, Marios Chryssanthopoulos and Luis Oliveira Santos	
Coffee Break *10.15-10.45*			
Session 2 *10.45-12.30* ***Location:*** Building 116, Room 40	10.45 – 11.05	**Value of information by Bayesian updating of model uncertainties in the context of logical and Daniels systems** Henning Brüske and Sebastian Thöns	Sebastian Thöns
	11.10 – 11.30	**Investigation on Characteristics of Fall Accidents in Construction Industry** Tetsuo Hojo and Katsutoshi Ohdo	
	11.35 – 11.55	**Nondestructive assessment of crack geometry in concrete structures using ultrasonic tomography** Krzysztof Schabowicz, Lukasz Radzik and Tomasz Gorzelańczyk	
Lunch Break *12.30-13.30*			
Session 3 *13.30-15.00*	**No sessions**		
Coffee Break *15.00-15.30*			
Session 4 *15.30-17.00*	**No sessions**		
Conference Dinner *17.30-22.00*			

MSSCE 2016 – Segment Programme

Monday 22/8 2016

Service Life of Cement-Based Materials and Structures - Slot #1

	Session	Paper	Presenter	Chair
22/08 (Mon) ***Session 1*** *08.30-10.15* ***Location:*** **Aud 81**	Welcome and WG1 plenary	Welcome (15 min.)	Core group	Core group of COST TU1404
		WG1 - Plenary session.	WG1 leaders	
		EXTENDED ROUND ROBIN TESTING PROGRAM OF COST ACTION TU1404 – LESSONS LEARNED FROM THE INITIAL EXPERIMENTAL PHASE	Marijana Serdar	
		VERCORS MOCKUP – FIRST EXPERIMENTAL RESULTS AND SYNTHESIS OF THE BENCHMARK	Benoît Masson	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Aud 81**	Session Advanced testing techniques	BENDER-EXTENDER ELEMENTS FOR CHARACTERIZATION OF CEMENT PASTE AT EARLY AGES	José Granja Start: 10.50	Stéphanie Staquet
		ON UTILISATION OF ELLIPTICAL RINGS FOR ASSESSING CRACKING TENDENCY OF CONCRETE AND OTHER CEMENT-BASED MATERIALS	Xiangming Zhou Start: 11.10	
		CARBON NANOPARTICLES CEMENT-BASED MATERIALS FOR SERVICE LIFE MONITORING	Paulo B. Cachim Start: 11.30	
		ULTRASONIC ASSESSMENT IN CURING PROCESS OF CBM USING EXPERIMENTAL MONITORING TESTS AND MICROSTRUCTURAL SIMULATION TOOLS	José Vicente Fuente Start: 11.50	
		MEASURING THE INFLUENCE OF TEMPERATURE ON ELECTRICAL PROPERTIES OF CONCRETE	Alex Coyle Start: 12.10	
Lunch Break *12.30-13.30*				

	Session	Paper	Presenter	Chair
22/08 (Mon) ***Session 3*** *13.30-15.00* ***Location:*** **Aud 81**	**Advanced testing techniques and eco-concrete**	**NON-DESTRUCTIVE EVALUATION OF STRENGTH DEVELOPMENT IN CONCRETE**	**Ivan Gabrijel** Start: 13.35	**Marijana Serdar**
		USE OF ULTRASONIC P- AND S-WAVES TRANSMISSION VELOCITY FOR THE EARLY AGE BEHAVIOUR OF ECO-CONCRETE	**Jérôme Carette** Start: 13.55	
		NON-DESTRUCTIVE EVALUATION OF ECO-FRIENDLY CEMENTITUOUS MATERIALS BY ULTRASOUND	**Markus Krüger** Start: 14.15	
		EFFECT OF RECYCLED AGGREGATE CONCRETE ON EARLY AGE BEHAVIOR	**Ahmed Z. Bendimerad** Start: 14.35	
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* ***Location:*** **Aud 81**	**Eco-concrete**	**MECHANICAL ACTIVATION OF SUPPLEMENTARY CEMENTITIOUS MATERIALS IN ORDER TO USE AS HYDRAULIC BINDER**	**Gábor Mucsi** Start: 15.35	**Jérôme Carette**
		PROPERTIES OF CONCRETE RECYCLING CLAY-RICH DREDGING SEDIMENTS AS A NOVEL SUPPLEMENTARY CEMENTITIOUS MATERIAL	**Céline Van Bunderen** Start: 15.55	
		WASTE CERAMICS AS PARTIAL CEMENT AND AGGREGATE REPLACEMENTS IN SELF-COMPACTING CONCRETE	**Paul Archbold** Start: 16:15	
		CHLORIDE PENETRATION COEFFICIENT AND FREEZE-THAW DURABILITY OF WASTE METAKAOLIN CONTAINING HIGH STRENGTH SELF-COMPACTING CONCRETE	**Diana Bajare** Start: 16:35	

Tuesday 23/8 2016

Service Life of Cement-Based Materials and Structures - Slot #1

	Session	Paper	Presenter	Chair
23/08 (Tue) ***Session 1*** *08.30-10.15* ***Location:*** **Aud 81**	Microstructural modelling I	CAN A RELIABLE PREDICTION OF CEMENT PASTE TRANSPORT PROPERTIES BE MADE USING MICROSTRUCTURE MODELS?	Ravi A. Patel Start: 8.35	Cyrille Dunant
		CEMRS: FAST AND EFFICIENT MODELLING PLATFORM FOR THE SIMULATION OF CEMENTITIOUS SYSTEMS	Shiju Joseph Start: 8.55	
		NANOSCALE SIMULATIONS OF CEMENT FORMATION AND STRUCTURAL EVOLUTION: A NEW KINETIC APPROACH	Enrico Masoero Start: 9.15	
		THE IMPORTANCE OF MULTIPHYSICS AND MULTISCALE MODELLING OF CONCRETE TO UNDERSTAND ITS COMPLEX MACROSCOPIC PROPERTIES	Jörg F. Unger Start: 9.35	
		MODELLING OF AGEING OF LOW-PH CONCRETES	Laurie Buffo-Lacarrière Start: 9.55	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Aud 81**	Microstructural modelling II	MODELING OF EARLY AGE CONCRETE CREEP USING RHEOLOGICAL MODELING APPROACHES	Wibke Hermerschmidt Start: 10.50	Jörg F. Unger
		SHORT-TERM CREEP OF CEMENT PASTE: EXPERIMENTS AND MULTISCALE MODELING	Bernhard Pichler Start: 11.10	
		COUPLINGS BETWEEN CREEP AND DAMAGE: ROLE OF THE FRACTURE CRITERION	Cyrille Dunant Start: 11.30	
		EVALUATION OF THE LDPM ELASTIC AND FRACTURE PARAMETERS BY UP-SCALING PROCEDURE	Erez Gal Start: 11.50	
		DISCRETE MODELING OF SURFACE CRACKING OF DRYING CONCRETES AT DIFFERENT AGES: APPLICATION TO TU1404 RRT CONCRETE	Arnaud Delaplace Start: 12.10	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Aud 81**	WG2 plenary	WG2 - Plenary session	WG2 Leaders	WG2 Leaders
		BENCHMARKING OF COMPLEX SYSTEMS: APPLICATION TO CEMENT BASED MATERIALS	Janez Perko	
Coffee Break *15.00-15.30*				

	Session	Paper	Presenter	Chair
23/08 (Tue) ***Session 4*** *15.30-17.00* ***Location:*** **Aud 81**	**Macroscopic modelling**	**FINITE ELEMENT MODELS CAPABLE TO GIVE DETAILED INFORMATION ABOUT CRACKS SPACING AND OPENING IN CONCRETE STRUCTURES IN SERVICE LIFE CONDITIONS**	**Pierre Rossi** Start: 15.35	**Farid Benboudjema**
		CONTEMP – A VIRTUAL THERMO-MECHANICAL SIMULATOR FOR HYDRATING REINFORCED CONCRETE BLOCKS WITH EXTENSION TO SERVICE LIFE	**Vít Šmilauer** Start: 15.55	
		NUMERICAL SIMULATION SINCE EARLY AGES OF THE RG8 BEAM TEST FROM CONCRACK BENCHMARK BY MEANS OF A 3D FIBRE FRAME MODEL	**Maria D. Crespo** Start: 16:15	
		COMPUTATIONAL PREDICTION OF RESTRAINT-INDUCED MACROCRACK PATTERNS IN CONCRETE WALLS	**Dirk Schlicke** Start: 16:35	
Conference Dinner *17.30-22.00*				

Wednesday 24/8 2016

Service Life of Cement-Based Materials and Structures - Slot #1

	Session	Paper	Presenter	Chair
24/08 (Wed) ***Session 1*** *08.30-10.15* ***Location:*** **Room 19**	**HPC and FRC**	**MECHANICAL PROPERTIES OF ULTRA HIGH PERFORMANCE FIBRE REINFORCED CONCRETE**	**Radoslav Sovják** Start: 8.35	**Terje Kanstad**
		STUDY ON THE EFFECTS OF DEFORMED STEEL FIBRES ON STRENGTHENING AND TOUGHENING OF ULTRA-HIGH PERFORMANCE CONCRETE	**Gai-Fei Peng** Start: 8.55	
		NUMERICAL MODELLING OF FRACTURE OF MACRO-POLYMER FIBER REINFORCED CONCRETE	**Jaime C. Galvez** Start: 9.15	
		AN INVESTIGATION ON USABILITY OF BASALT FIBRE IN CEMENT-BASED COMPOSITES	**Emre Sancak** Start: 9.35	
		USABILITY OF BASALT FIBRES IN FIBRE REINFORCED CEMENTITIOUS COMPOSITES	**Z.Canan Girgin** Start: 9.55	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Room 19**	**Long term performance of RC**	**RESIDUAL CONCRETE STRENGTH AFTER SUSTAINED LOAD: EXPERIMENTAL RESULTS AND MODELLING APPROACH**	**Matthieu Briffaut** Start: 10.50	**Miguel Ferreira**
		IMPACT OF SLAG CONTENT IN ALKALI-ACTIVATED SLAG CEMENT ON POROSITY OF CONCRETE	**Igor Rudenko** Start: 11.10	
		AGING TESTS FOR PERFORMANCE OF PHOTOCATALYTIC CEMENT BASED MATERIALS	**František Peterka** Start: 11.30	
		EFFECTS OF CURING TEMPERATURE ON CHLORIDE MIGRATION AND ELECTRICAL RESISTIVITY OF CONCRETE	**T. Alper Yıkıcı** Start: 11.50	
Lunch Break *12.30-13.30*				
24/08 (Wed) ***Session 3*** *13.30-15.00* ***Location:*** **Aud 82**	**Design**	**Session takes place in Auditorium 82 (see program of slot #2)**		
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* ***Location:*** **Aud 82**	**WG3 plenary**	**WG Plenary, Closing and MC meeting Session takes place in Auditorium 82 (see program of slot #2)**		

MSSCE 2016 – Segment Programme

Monday 22/8 2016

Service Life of Cement-Based Materials and Structures - Slot #2

	Session	Paper	Presenter	Chair
22/08 (Mon) ***Session 1*** *08.30-10.15* ***Location:*** **Aud 81**	Welcome and WG1 plenary	Welcome and plenary session in Auditorium 81 (see program of slot #1)		
Coffee Break *10.15-10.45*				
22/08 (Mon) ***Session 2*** *10.45-12.30* ***Location:*** **Aud 82**	Chlorides in concrete I	PREDICTING CHLORIDE INDUCED DEPASSIVIATION AND MINIMUM CONCRETE COVER WITH DIFFERENT BINDERS	Ingemar Löfgren Start: 10.50	Guang Ye
		CHLORIDE DIFFUSION AND BINDING IN HARDENED CEMENT PASTE FROM MICROSCALE ANALYSES	Pietro Carrara Start: 11.10	
		A RISK-BASED MODEL FOR DETERMINING ALLOWABLE ADMIXED CHLORIDE LIMITS IN CONCRETE	David Trejo Start: 11.30	
		MODELLING OF CHLORIDE TRANSPORT IN UNSATURATED CONCRETE: STUDY OF ELECTROCAPILLARY EFFECT	Amiri Ouali Start: 11.50	
		CONDITION ASSESSMENT OF REINFORCED CONCRETE ELEMENTS EXPOSED TO CARBONATION	Samindi Samarakoon Start: 12.10	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Aud 82**	Chlorides in concrete II	CHLORIDE ION DIFFUSION IN CONCRETE UNDER TENSILE LOAD	Ling Wang Start: 13.35	Sreejith V. Nanukuttan
		MODELLING OF TRANSPORT OF CHLORIDE IONS IN CONCRETE UNDER COMPRESSIVE LOAD	Yin Cao Start: 13.55	
		AVOIDING OVERFITTING IN INVERSE MODELING OF CHLORIDE MIGRATION IN CONCRETE	Neven Ukrainczyk Start: 14.15	
		SERVICE LIFE PREDICTION OF A CEMENTITIOUS COATING SYSTEM BASED ON CHLORIDE-INDUCED CORROSION	Hua Dong Start: 14.35	
Coffee Break *15.00-15.30*				

	Session	Paper	Presenter	Chair
22/08 (Mon) ***Session 4*** *15.30-17.00* ***Location:*** **Aud 82**	**Durability**	**EVALUATION OF CONCRETE'S RESISTANCE TO PHYSICAL SULFATE SALT ATTACK**	**Semion Zhutovsky** Start: 15.35	**David Trejo**
		COMPARATIVE ANALYSIS OF COMPRESSIVE STRENGTH AND VOLUME CHANGE FOR DETERMINATION OF SULFATE RESISTANCE OF RAC	**Vlastimir Radonjanin** Start: 15.55	
		REMAINING SERVICE LIFE OF RAILWAY PRESTRESSED CONCRETE SLEEPERS	**Sakdirat Kaewunruen** Start: 16:15	
		DEFINITION OF DAMAGE DISTRIBUTION DUE TO INTERNAL EXPANSIVE REACTIONS IN LONG TERM CONCRETE STRUCTURES	**Esperanza Menéndez** Start: 16:35	

Tuesday 23/8 2016

Service Life of Cement-Based Materials and Structures - Slot #2

	Session	Paper	Presenter	Chair
23/08 (Tue) ***Session 1*** *08.30-10.15* ***Location:*** **Aud 82**	SCM and shrinkage	VOLUME STABILITY OF ALKALI ACTIVATED PORTLAND CEMENT CONCRETES WITH ALKALI-SUSCEPTIBLE AGGREGATES	Igor Rudenko Start: 8.35	Aveline Darquennes
		BASIC AND DRYING SHRINKAGE OF INFRASTRUCTURE CONCRETES WITH VARIABLE FLY ASH CONTENT	Anja Klausen Start: 8.55	
		EFFECT OF GRANULATED BLAST FURNACE SLAG ON THE DURABILITY OF SELF COMPACTING CONCRETE IN HOT ENVIRONMENT	Said Kenai Start: 9.15	
		EXPERIMENTAL AND NUMERICAL INVESTIGATION OF DRYING EFFETS ON CONCRETE'S MECHANICAL PROPERTIES	François Soleilhet Start: 9.35	
		COMPARISON OF MEASURED AND PRESCRIBED K-VALUES FOR THE EQUIVALENT PERFORMANCE OF FLY ASH CONCRETE	T. Altuğ Söylev Start: 9.55	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Aud 82**	Shrinkage	PLASTIC SHRINKAGE CRACKING IN SELF-COMPACTING CONCRETE: A PARAMETRIC STUDY	Faez Sayahi Start: 10.50	Emmanuel Roziére
		MITIGATION OF EARLY AGE SHRINKAGE OF UHPFRC BY USING SPENT EQUILIBRIUM CATALYST	Ana Mafalda Matos Start: 11.10	
		EXPERIMENTAL AND NUMERICAL ANALYSIS OF DRYING SHRINKAGE ON CEMENT-BASED MATERIALS	Marie Malbois Start: 11.30	
		SIZE EFFECT ON THE DRYING SHRINKAGE	Aveline Darquennes Start: 11.50	
		CONCRETE DRYING: EFFECTS OF BOUNDARY CONDITIONS AND SPECIMEN SHAPE	Jérôme Carette Start: 12.10	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Aud 81**	WG2 plenary	WG2 - Plenary session in Auditorium 81 (see program of slot #1)	-	-
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* ***Location:*** **Aud 82**	SAP's and Self-healing	QUANTIFICATION THE FILLING OF MICROCRACKS DUE TO AUTOGENOUS SELF-HEALING IN CEMENT PASTE	Jiayi Chen Start: 15.35	Mateusz Wyrzykowski
		WATER RELEASE PROCESS OF SUPERABSORBENT POLYMERS IN CEMENT PASTE AT EARLY AGE	Yujiang Wang Start: 15.55	
		BIO-BASED PH-RESPONSIVE SUPERABSORBENT POLYMERS FOR SELF-HEALING CRACKS IN CONCRETE	Arn Mignon Start: 16:15	
		IMPACT OF BIOGENIC SELF-HEALING ADDITIVE ON PERFORMANCE OF CEMENT-BASED MORTAR	Ali Amiri Start: 16:35	
Conference Dinner *17.30-22.00*				

Wednesday 24/8 2016

Service Life of Cement-Based Materials and Structures - Slot #2

	Session	Paper	Presenter	Chair
24/08 (Wed) ***Session 1*** *08.30-10.15* ***Location:*** **Aud 82**	Corrosion	MULTIDEPTH CORROSION MONITORING SYSTEM EVALUATION AND APPLICATION	Dalibor Sekulic Start: 8.35	Luping Tang
		SENSITIVITY ANALYSIS FOR PREDICTION OF CORROSION INITIATION BY CARBONATION	Van Loc Ta Start: 8.55	
		EXPERIMENTAL STUDY OF CORROSION-INDUCED DEGRADATION OF REINFORCED CONCRETE ELEMENTS	Olfa Loukil Start: 9.15	
		COUPLING LIMIT STATES OF CORROSION INITIATION AND CORROSION INDUCED CRACK OPENING – SENSITIVITY ANALYSIS OF MODEL PARAMETERS	Miguel Ferreira Start: 9.35	
		INFLUENCE OF FIBRE REINFORCEMENT ON THE INITIATION OF CORROSION-INDUCED CRACKS	Carlos G. Berrocal Start: 9.55	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Aud 82**	Structural behaviour	SOME EXAMPLES ON SHRINKAGE RESTRAINT EFFECTS ON CONCRETE AND CONCRETE STRUCTURES	Farid Benboudjema Start: 10.50	Dirk Schlicke
		CONTROL OF EARLY AGE CRACKING IN A MASSIVE TUNNEL STRUCTURE BASED ON EXPERIMENTAL INVESTIGATIONS AND NUMERICAL SIMULATIONS	Wibke Hermerschmidt Start: 11.10	
		HARDENING INDUCED STRESSES IN VERY THICK CONCRETE MEMBERS – INSIGHTS FROM COMPREHENSIVE FE-STUDIES	Peter Joachim Heinrich Start: 11.30	
		INFLUENCE OF RESTRAINED SHRINKAGE IN RC BUILDUING SLABS: A CASE STUDY	Carlos Sousa Start: 11.50	
		EXPERIMENTAL INVESTIGATION ON STRAIN DISTRIBUTION IN REINFORCEMENT OF RC SPECIMENS UNDER TENSION LOADING	Gintaris Kaklauskas Start: 12.10	
Lunch Break *12.30-13.30*				

	Session	Paper	Presenter	Chair
24/08 (Wed) ***Session 3*** *13.30-15.00* ***Location:*** **Aud 82**	**Design**	**SERVICE LIFE DESIGN AND ASSESSMENT FOR CONCRETE STRUCTURES IN HZM SEA LINK PROJECT FOR 120 YEARS**	**Kefei Li** Start: 13.35	**Miguel Azenha**
		A NEW ANALYTICAL APPROACH IN MODELLING OF CRACKING OF RC MEMBERS	**Gintaris Kaklauskas** Start: 13.55	
		DEVELOPING AN ENGINEERING APPROACH FOR MIGRATING FROM PRESCRIPTIVE TO PERFORMANCE-BASED SPECIFICATION FOR CONCRETE	**Sreejith Nanukuttan** Start: 14.15	
		CRACK WIDTH CONTROL – VERIFICATION OF THE DEFORMATION COMPATIBILITY VS. COVERING THE CRACKING FORCE	**Dirk Schlicke** Start: 14.35	
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* ***Location:*** **Aud 82**	**WG3 plenary**	**WG3 - Plenary session**	**WG3 Leaders**	**Core group of COST TU1404**
		Closing of event	**Stéphanie Staquet**	
		MC Meeting (16h00m – 17h00m)	**-**	

MSSCE 2016 – Segment Programme

Monday 22/8 2016

Historical Masonry

	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.15* ***Location:*** **Building 127 room 012**	**Natural Stone**	**08:30-08:40 Welcome**	**Inge Rörig-Dalgaard and Ioannis Ioannou**	**Inge Rörig-Dalgaard and Ioannis Ioannou**
		08:40-09:15 Keynote: Mineral Consolidants	**George W. Scherer, Enrico Sassoni**	
		09:15-09:35 Estimation of physical properties of volubilis calcarenite stone using non-destructive testing	**Issam Aalil, Kévin Beck, Xavier Brunetaud, Khalid Cherkaoui, Ali Chaaba, Muzahim Al-Mukhtar**	
		09:35-09:55 Use of local stone: cautionary tales	**Edward Gerns, Rachel Will**	
		09:55-10:15 Lessons learnt from the anomalous water sorptivity of stones: the case of a cypriot limestone	**Cleopatra Charalambous, Ioannis Ioannou**	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Building 127 room 012**	**Mortars**	**10:45-11:05 Fluid mortars for filling large cracks**	**Maria Stefanidou, Ioanna Papayianni**	**Maria Stefanidou Kristin Balksten**
		11:05-11:25 Thermo-hydro-mechanical properties of repair mortars designed for the restoration of historical buildings in the Loire valley-France	**Marwen Bouasker, Omar Abdulkareem, Amor Ben Fraj, Muzahim Al-Mukhtar, Kévin Beck**	
		11:25-11:45 Durability of Air Lime mortar	**Anders Nielsen**	
		11:45-12:05 Catalytic effect of carbonic anhydrase enzyme on lime mortar carbonation	**Özlem Cizer, Koen Van Balen, Carlos Rodriguez Navarro (Shiju Joseph)**	
		12:05-12:25 Development of mortars in Denmark from the viking age until today	**Mette Stubager Moesgaard, Thea Bech-Petersen, Helge Hansen**	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Building 127 room 012**	**Weathering and Conservation I**	**13:50-13:50 Suitability of different paint coatings for renders based on natural hydraulic lime**	**Ana Paula Ferreira Pinto, Hugo Passinhas, Augusto Gomes, Bruna Silva**	**Barbara Lubelli Leo Pel**
		13:50-14:10 Assessment of flood and wind driven rain impact on mechanical properties of historic brick masonry	**Victoria Stephenson, Yasemin D. Aktas, Dina D'Ayala**	

		14:10-14:30 Strain changes during the progress of water infiltration in tuffeau stone	**Mohamed Ahmed Hassine, Kevin Beck, Xavier Brunetaud, Muzahim Al-Mukhtar**	
		14:30-14:50 Comparative study of Prehistoric, traditional and contemporary adobe bricks from Cyprus	**Maria Costi de Castrillo, Ioannis Ioannou, Maria Philokyprou**	
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* ***Location:*** **Building 127 room 012**	**Poster session**	**15:30-15:35 Salt crystallization laboratory test with a complex brine**	**Beatriz Menéndez**	**Kévin Beck**
		15:35-15:40 Consolidating effects of nano-lime products on porous lime renders and limestone	**Zuzana Slížková**	
		15:40-15:45 Fibre reinforced plaster/render to out of plane behaviour of masonry	**Miloš Drdácký**	
		15:45-15:50 Interior insulation retrofit of a brick wall using vacuum insulation panels: re-creation of cultural historical values in buildings from before 1945	**Pär Johansson, Paula Wahlgren**	
		15:50-15:55 The applicability and robustness of Interior Insulation	**Søren Peter Bjarløv**	

Tuesday 23/8 2016

Historical Masonry

	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.15* ***Location:***				
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30*	**Weathering and Conservation II** **Serve as an intro to the**	**10:45-11:05 Influence of ph during Chemical weathering of bricks: Long term exposure**	**Inge Rörig-Dalgaard, A. Elena Charola**	**Noushine Shahidzadeh, Robert J. Flatt**

Location: **Building 127 room 012**	**RILEM TC ASC, since it includes salt-related papers**	**11:05-11:25 Poulticing vs electrophoresis desalination of historic masonry, The case of the mill at Hoksem**	**Sebastiaan Godts, Hilde De Clercq, Roald Hayen**	
		11:25-11:45 Effect of application of lime plasters to salt-laden bricks	**Cristiana Nunes and Zuzana Slížková**	
		11:45-12:05 Salt contaminated sandstone under environmental loading: recrystallization process and its consequences	**Julie Desarnaud, Hannelore Derluyn, Lisa Grementieri, Luisa Molari, Stefano de Miranda, Veerle Cnudde, Noushine Shahidzadeh**	
		12:05-12:25 Wick action in porous building materials as studied by NMR	**Raheleh Pishkari, Leo Pel**	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Building 127 room 012**	**TC ASC**			
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* ***Location:*** **Building 127 room 012**	**TC ASC**			
Conference Dinner *17.30-22.00*				

Wednesday 24/8 2016

Historical Masonry

	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.15* ***Location:*** **Building 127**	**Masonry Structures**	**08:30-09:05 Keynote: Behavior of historic masonry structures subjected to blast: testing, constitutive modeling and applications**	**Paulo B. Lourenco**	**Daniel V. Oliveira**

room 012		**09:05-09:25 Experimental study of brick masonry walls subjected to eccentric and axial load**	**Cossima Cornado, Joan Ramon Rosell, Joan Leiva, Cesar Diaz**	
		09:25-09:45 Numerical study on the seismic performance of adobe vaulted architecture: a case study from Iran	**Neda H. Sadeghi, Daniel V. Oliveira, Mariana Correia, Hamed Azizi-Bondarabadi, Agustín Orduña**	
		09:45-10:05 Assessment of the injection of grouts to repair cracks in rammed earth	**Rui A. Silva, Oriol Domínguez Martínez, Daniel V. Oliveira, Eduardo Pereira, Edgar Soares**	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Building 127 room 012**	**Case Studies**	**10:45-11:05 Characterization of masonry materials and structural analysis of the st Mary of Carmel church in Famagusta**	**Rogiros Illampas, Ioannis Ioannou, Magdalini Theodoridou, Revecca Fournari**	**Poul Klenz Larsen Milos Drdácký**
		11:05-11:25 Lime burning tradition of Gotland	**Kristin Balksten**	
		11:25-11:45 Risk assessment and mitigation through hydrothermal modeling of historic masonry	**Roald Hayen, Sebastiaan Godts**	
		11:45-12:05 "Electro-physical" methods to stop rising damp. Assessment of the effectiveness in two case studies	**Barbara Lubelli, Rob P.J. van Hees, Linda Miedema, M. Fugazzotto, A. Sardella, A. Bonazza**	
		12:05-12:25 Determination of moisture distribution in Brick Masonry walls	**Poul Klenz Larsen**	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Building 127 room 012**	**Closure – round table discussion on Masonry related issues**			**Ioannis Ioannou and Inge Rörig-Dalgaard**
Coffee Break *15.00-15.30*				

MSSCE 2016 – Segment Programme

Monday 22/8 2016

Electrochemistry in civil engineering

	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.15* ***Location:*** **Building 116, room 44**	**Diagnosis tools**	***Key note*** **Concrete electrical resistivity to evaluate reinforcement service life**	**Carmen Andrade**	**Lisbeth M. Ottosen**
		On-site corrosion monitoring – reliability	**Lucas Bourreau**	
		Laboratory and in-the field experiences on the measurement of spontaneous potential in masonry affected by rising damp	**Elisa Franzoni**	
Coffee Break *10.15-11.00*				
Session 2 *10.00-12.30* ***Location:*** **Building 116, room 44**	**Corrosion**	**Polarization resistance of steel bar embedded in engineered cementitious composite under direct current exertion**	**Guanghui Zhang**	**Samudra Jayasekera**
		Mathematical law of steel thickness loss versus time applied to reinforced concrete contaminated by chlorides – first results	**Véronique Bouteiller**	
		Effect of phase distributions on the corrosion of quenched and self-tempered (qst) steel rebars	**Radhakrishna G. Pillai**	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Building 116, room 44**	**Repair and maintenance (1)**	**Cathodic protection used on Danish costal bridges**	**Ruth Elise Sørensen**	**Celia Ferreira**
		Electrochemical investigation of carbon-based conductive coatings for application as anodes in ICCP system of reinforced concrete structures	**Gino Ebell**	
		Quantitative expression of an organic corrosion inhibitor (pci-2014) for repairing steel bars in concrete contaminated with chloride	**Zhiyong Liu, Zixiao Wang, Weibin Yang, Lei Yu**	
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* ***Location:*** **Building 116, room 44**		**Electrochemical injection of nanoparticles into concrete**	**Jiří Němeček**	
		Electromigration of li ions into cementitious materials as observed by NMR	**Leo Pel**	
		Electrokinetic nanoparticle treatment for crack repair in concrete	**Henry Cardenas**	

Tuesday 23/8 2016

Electrochemistry in civil engineering

	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.00* ***Location:*** **Building 116, room 44**	**Repair and maintenance (2)**	**Electrochemical chloride extraction: efficiency and side effects with different mineral admixtures**	**Sara Ramos**	**Cátia Margo**
		Corrosion processes and ECE treatment in a both carbonated and chlorinated reinforced concrete	**Yolaine Tissier**	
		Electrokinetic polymerization of polymethyl methacrylate in hardened cement paste	**Henry Cardenas**	
Coffee Break *10.00-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Building 116, room 44**	**Geotechnical applications**	**Electro-desalination of sandstone contaminated with sodium sulphate**	**Lisbeth M. Ottosen**	**Leo Pel**
		Electro-desalination of glazed tile panels – discussion of possibilities	**Celia Dias-Ferreira**	
		Key note **Using geoelectrical methods to assess corrosion of rebar and preferential flow paths in dams**	**André Revil**	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Building 116, room 44**	**Upgrading of waste to resource**	**Electrokinetics to modify volume change characteristics of expansive soils: a laboratory based investigation**	**Samudra Jayasekera**	**Sara Ramos**
		Changes in electrical resistivity used as monitoring tool during the electrokinetic treatment of clayey soils	**Vikas Gingine**	
		Replacement of 5% of OPC by fly ash and APC residues from MSWI with electrodialytic pre-treatment	**Cátia Magro**	
Coffee Break *15.00-15.30*				
Session 4 *15.30-16.30* ***Location:*** **Building 116, room 44**		**Incorporation of treated straw and wood fly ash into clay building brick**	**Wan Chen**	
		Remediation of As contaminated soil - comparision of two different electrodialytic cells and applicability of treated soil in brick materials	**Ana Rita Ferreira**	
Conference Dinner *17.30-22.00*				

MSSCE 2016 – Segment Programme

Monday 22/8 2016

Moisture in Materials and Structures

22/8 (Mon)	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.15* ***Location:*** **Building 116 Room 13**	**Practice and field investigations I**	**Investigation methodology for moisture damages**	**Lars-Olof Nilsson** (Invited) *08.30-09.05*	**Kurt Kielsgaard Hansen**
		A case of peeling	**Anders Nielsen** *09.05-09.25*	
		Magnesium-oxide boards cause moisture damage inside facades in new Danish buildings	**Tommy Bunch-Nielsen** *09.25-09.45*	
		Deterioration of concrete structures due to salt crystallization; influence of salt types and relative humidity	**Samindi Samarakoon** *09.45-10.05*	
		Discussion	*10.05-10.15*	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Building 116 Room 13**	**Practice and field investigations II**	**Full scale laboratory test building for examining moisture penetration through different ceilings**	**Thor Hansen** *10.45-11.05*	**Elisa Franzoni**
		Experiences with hydrophobic impregnations in repair-measures	**Christoph Gehlen** *11.05-11.25*	
		Conservation of the Danube spring zodiac reliefs based on continuous structural health monitoring	**Frank Lehmann** *11.25-11.45*	
		The hygrothermal performance of a neolithic passage grave	**Poul Klenz Larsen** *11.45-12.05*	
		Discussion	*12.05-12.30*	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Building 116 Room 13**	**Modelling and analytical assessment methods I**	**New requirements on simulation tools for building energy performance evaluation**	**John Grunewald** (Invited) *13.30-14.05*	**Carsten Rode**
		Numerical simulation of humidity fields in concrete considering the model code formulation	**Miguel Azenha** *14.05-14.25*	
		Quantification of time-dependent moisture distributions in cement-based materials	**Peng Zhang** *14.25-14.45*	
		Discussion	*14.45-15.00*	

22/8 (Mon)	Session	Paper	Presenter	Chairman
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* ***Location:*** **Building 116 Room 13**	**Modelling and analytical assessment methods II**	**Numerical analysis of salt crystallization in non-isothermal moist porous materials**	**Dariusz Gawin** *15.30-15.50*	**Oliver Weichold**
		Sensivity analysis of moisture transport models in the framework of a reliability approach	**Sylvain Pradelle** *15.50-16.10*	
		Comparison of artificial neural networks and response surface methodology in stone mastic asphalt using waste granite filler	**Sedat Çetin** *16.10-16.30*	
		Discussion	*16.30-17.00*	
18.00-19.00	**Pancake reception at the Copenhagen City Hall**			

Tuesday 23/8 2016

Moisture in Materials and Structures

23/8 (Tue)	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.15* ***Location:*** **Building 116** **Room 13**	**Experimental methods I**	**Study of hygrothermal behavior of very hygroscopic insulation**	**Abdelkrim Trabelsi** (Invited) *08.30-09.05*	**Charlotte Thiel**
		Electrical investigations for moisture assessment on civil engineering structures	**Jean-François Lataste** *09.05-09.25*	
		Gas permeability and electrical resistivity of structural concretes: impact of pore saturation	**Kefei Li** *09.25-09.45*	
		In situ concrete moisture measurement using gas permeability	**Franck Agostini** *09.45-10.05*	
		Discussion	*10.05-10.15*	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Building 116** **Room 13**	**Experimental methods II**	**Non-destructive measurements of ^{1}H, ^{23}Na and ^{35}Cl profiles in building materials with NMR**	**Leo Pel** *10.45-11.05*	**Lars-Olof Nilsson**
		Non-destructive moisture measurement in building materials using single-sided nuclear magnetic resonance	**Oliver Weichold** *11.05-11.25*	
		Investigating the role of moisture on concrete carbonation using single-sided ^{1}H-NMR	**Charlotte Thiel** *11.25-11.45*	
		Laboratory models for the assessment of the effectiveness of chemical damp-proofing in masonry: existing methods and some proposals for new fixtures	**Elisa Franzoni** *11.45-12.05*	
		Discussion	*12.05-12.30*	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Building 116** **Room 13**	**Other materials than cementitious materials I**	**Non-destructive wood moisture content measurements using computed tomography scanning**	**Owe Lindgren** *13.30-13.50*	**Jean-Francois Lataste**
		Analysis of wood and biomaterials by dynamic vapor sorption technique	**Damiano Cattaneo** *13.50-14.10*	
		Moisture transport properties of brick – comparison of exposed, impregnated and rendered brick	**Ruut Hannele Peuhkuri** *14.10-14.30*	
		Discussion	*14.30-15.00*	
Coffee Break *15.00-15.30*				

23/8 (Tue)	Session	Paper	Presenter	Chairman
Session 4 *15.30-17.00* ***Location:*** **Building 116** **Room 13**	**Other materials than cementitious materials II**	**On the improvement of hygroscopic capacity of clay based materials**	**Lorena Freitas Dutra** *15.30-15.50*	**Franck Agostini**
		Hygrothermal behaviour of hollow and filled ceramic masonry blocks	**Balázs Nagy** *15.50-16.10*	
		The differences in water absorption rates of external thermal insulation composite system	**Edita Smetonaite** *16.10-16.30*	
		Discussion	*16.30-17.00*	
17.30-20.0	**Conference Dinner**			

Wednesday 24/8 2016

Moisture in Materials and Structures

24/8 (Wed)	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.15* ***Location:*** **Building 116 Room 13**	**Other materials than cementitious materials III**	**Effect of moisture on tuff stone degradation**	**Barbara Lubelli** *08.30-08.50*	**Markus Krüger**
		Phenomenologic analysis on the moisture flux through cracks in masonry	**Klaas Calle** *08.50-09.10*	
	Cementitious materials I	**Monitoring and simulating humidity profiles in concrete elements during drying**	**Miguel Azenha** *09.10-09.30*	
		Drying of cement-based porous materials: a fractional kinetic appraoch	**Qiang Zeng** *09.30-09.50*	
		Discussion	*09.50-10.15*	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Building 116 Room 13**	**Cementitious materials II**	**Water absorption into white cement mortars by capillarity**	**Chunsheng Zhou** *10.45-11.05*	**Miguel Azenha**
		Prediction of permeability from water vapor sorption isotherm of cement-based materials	**Dongdong Zhang** *11.05-11.25*	
		Electrical behavior of hardened cement paste at radio frequency under various moisture saturation degrees	**Gopinandan Dey** *11.25-11.45*	
		Calibration samples for the measurement of moisture content in concrete	**Miguel-Ángel Climent** *11.45-12.05*	
		Discussion	*12.05-12.30*	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Building 116 Room 13**	**Cementitious materials III**	**Development of interior relative humidity due to self-desiccation in blended cementitious system**	**Guang Ye** *13.30-13.50*	**Christoph Gehlen**
		Potential of moisture dry-out from concrete wall in estonian climate	**Peep Pihelo** *13.50-14.10*	
		Discussion	*14.10-15.00*	
Coffee Break *15.00-15.30*				

MSSCE 2016 – Segment Programme

Monday 22/8 2016

Concrete with Supplementary Cementitious Materials

	Session	Paper	Chair
Session 1 *08.30-10.15* ***Location:*** Building 116 Aud-83	**Characterization and Mix Design**	**Welcome and Introduction on TC-SCM** **Presenter:** Nele De Belie	**Maria Juenger**
		Particle Size Distribution and Specific Surface Area of SCM's compared through Experimental Techniques **Presenters**: Natalia M. Alderete, Yury A. Villagrán Zaccardi, Gabriela S. Coelho Dos Santos, Nele de Belie	
		Calcined Dredged Sediments as Supplementary Cementitious Materials: Properties and Pozzolanic Reactivity **Presenters**: Ruben Snellings, Liesbeth Horckmans, Pawel Durdzinski, Céline Van Bunderen, Lucie Vandewalle, Koenraad Van Balen, Joris Dockx, Jos Vandekeybus, Özlem Cizer	
		Effect of Testing Conditions on the Loss on Ignition Results of Anhydrous Granulated Blast Furnace Slags determined via Thermogravimetry **Presenters**: Susan A. Bernal, Xinyuan Ke, Oday H. Hussein, John L. Provis	
		Supplementary Cementitious Materials in the Era of Sustainable Concrete **Presenters**: Vyacheslav Falikman, Nikolai Bashlykov	
Coffee Break *10.15-10.45*			
Session 2 *10.45-12.30* ***Location:*** Building 116 Aud-83	**Reaction Products and Microstructure**	**Effect of Fly Ash on Pore Structure of Hardened Cement Paste measured by Thermoporometry** Kiyofumi Kurumisawa, Takya Sugiyama, Masanori Miyamoto, **Presenters**: Toyoharu Nawa	**Barbara Lothenbach**
		Effects of W/P Ratio and Limestone Filler on Permeability of Cement Pastes **Presenters**: Quoc Tri Phung, Norbert Maes, Diederik Jacques, Geert De Schutter, Guang Ye	
		Physical and Mechanical Properties of Cement Mortars with Biomass Ashes as SCM **Presenters**: Mirjana Malešev, Vlastimir Radonjanin, Miroslava Radeka, Slobodan Šupić, Suzana Draganić	
		Influence of SCM on Pore Solution Composition **Presenters**: Anya Vollpracht, Barbara Lothenbach, Ruben Snellings, Johannes Haufe	
		Applicability of Nordic Clays as SCM **Presenters**: Harald Justnes, Tone Anita Østnor, Serina Ng	
Lunch Break *12.30-13.30*			
Session 3 *13.30-15.00* ***Location:*** Building 116 Aud-83	**Alkali Activation**	**Physical Properties and Pore Solution Analysis of Alkali Activated Fly Ash-Slag Pastes** **Presenters**: Marija Nedeljković, Kamel Arbi, Yibing Zuo, and Guang Ye	**Susan Bernal**
		Investigation of The Moisture Influence on Permeation Properties of Alkali-Activated Slag Concrete **Presenters**: Kai Yang, Sreejith Nanukuttan, Changhui Yang, Bryan Magee, Jianxiong Ye, Muhammed Basheer	

		Effects of Waste Glass and Activating Solution on Tungsten Mining Waste Alkali-Activated Binders **Presenters**: Gediminas Kastiukas, Xiangming Zhou	
		Performance Evaluation of Aplite Rock Based Geopolymer Binder **Presenters**: Samindi Samarakoon, Samdar Kakay, Erland Soli Johnsen, Fredrik Meidell Knutsen, Jon Emil Tobias Knutsson	
Coffee Break *15.00-15.30*			
Session 4 *15.30-17.00* ***Location:*** Building 116 Aud-83	**Reaction Kinetics (Part 1)**	**Influence of Particle Size Distribution of Slag, Limestone and Fly Ash on Early Hydration of Cement assessed by Isothermal Calorimetry** **Presenters**: Yury Villagrán-Zaccardi, Elke Gruyaert, Natalia Alderete, Nele De Belie	**Ruben Snelling**
		Comparison of Reaction Degrees of Slag and Fly Ash obtained by Thermogravimetry and Selective Dissolution **Presenters**: Yury Villagrán-Zaccardi, Elke Gruyaert, Nele De Belie	
		Effect of SCMs on Hydration Kinetics of Portland Cements **Presenters**: Barbara Lothenbach, Axel Schöler, Maciej Zajac, Mohsen Ben Haha, Frank Winnefeld	
		Differentiating the Physical and Chemical Effects of Supplementary Cementitious Materials in Cement Mortars **Presenters**: Manu Santhanam, Hemalatha M S	

Tuesday 23/8 2016

Concrete with Supplementary Cementitious Materials

	Session	Paper	Chair
Session 1 *08.30-10.15* ***Location:*** Building 116 Aud-83	**COST NORM4Building**	**Novel Cementing Binders and Norms** **Presenter**: John Provis (invited speaker)	**Wouter Schroeyers** **Konstantin Kovler**
		Production of Ceramics using Bottom Ash and Fly Ash from a Thermal Power Plant **Presenters**: Biljana Angjusheva, Emilija Fidancevska, Vilma Ducman, Ljubica Vladicevska	
		Sintering of Ceramics based on Mechanically Activated Fly Ash **Presenters**: Emilija Fidanchevski, Jörg Bossert, Biljana Angjusheva, Vojo Jovanov, Vineta Srebrenkoska	
		High Volume Fly Ash Hybrid Alkali Activated Cements and Concretes for Indoor Application **Presenters**: Pavel Krivenko, Oleksandr Kovalchuk, Valentina Grabovchuk	
		Radiological Study of Cements and Geopolymers **Presenters**: Francisca Puertas, Catalina Gascó, Luis Yagúe, Nuria Navarro, José Antonio Suárez, María del Mar Alonso, Manuel Torres-Carrasco, Patricia Rivilla	
Coffee Break *10.15-10.45*			
Session 2 *10.45-12.30* ***Location:*** Building 116 Aud-83	**Reaction Kinetics (Part 2)**	**Outcome of the RILEM Robin on Degree of Reaction of Slag and Fly Ash in Composite Cements** **Presenters**: Paweł T. Durdziński, Mohsen Ben Haha, Susan A. Bernal, Nele De Belie, Elke Gruyaert, Barbara Lothenbach, John L. Provis, Axel Schöler, Christopher Stabler, Zhijun Tan, Anya Vollpracht, Frank Winnefeld, Yury Villagrán Zaccardi, Maciej Zając, Karen L. Scrivener	**Karen Scrivener**
		Reactivity of Fly Ash in the Presence of Chemical Activators **Presenters**: Frank Winnefeld, Salaheddine Alahrache, Jean-Baptiste Champenois, Frank Hesselbarth, Barbara Lothenbach	

		Ultra High Performance Concrete (UHPC) with Low Silica Fume Contents and Limestone Aggregates **Presenters**: Guillermo Hernández-Carrillo, Alejandro Durán-Herrera, Pedro L. Valdez-Tamez	
	Durability (Part 1)	**Coal Bottom Ash Feasibility Study to be a New Portland Cement Constituent** **Presenters**: Miguel A. Sanjuán, Esperanza Menéndez, Cristina Argiz, Amparo Moragues	
		Investigation of the Effect of Partial Replacement of Portland Cement by Fly Ash on Carbonation using TGA and SEM-EDS **Presenters**: Andres Belda Revert, Klaartje de Weerdt, Karla Hornbostel, Mette Rica Geiker	
Lunch Break *12.30-13.30*			
Session 3 *13.30-15.00* ***Location:*** Building 116 Aud-83	**Properties of Concrete with SCMs (Part 1)**	**Evaluation of Hardened State Properties of GGBS-PC Mortars Modified by Superabsorbent Polymers (SAP)** **Presenters**: Fernando do Couto Rosa Almeida, Agnieszka Joanna Klemm	**Konstantin Kovler**
		Natural Zeolites as SCMs: Challenges and Solutions **Presenters**: Maria C.G. Juenger, Lisa E. Burris, Saamiya Seraj, Raissa P. Ferron	
		Do Supplementary Cementitious Materials and Blended Cements Indeed Increase Cracking Potential of Concrete? **Presenter**: Konstantin Kovler	
		The Rate of Strength Development of Mortar Mixes with SCMs at Elevated Curing Temperatures **Presenters**: Marios Soutsos, Gidion Turu'allo	
Coffee Break *15.00-15.30*			
Session 4 *15.30-17.00* ***Location:*** Building 116 Aud-83	**Properties of Concrete with SCMs (Part 2)**	**Realizing the Strengths of SCM Concretes by Recognizing Their Weaknesses** **Presenter**: R. Douglas Hooton	**Elke Gruyaert**
		The Effect of SCM Replacement on Autogenous Deformation of High Performance Concrete **Presenters**: Abdulaziz Alaskar, R. Douglas Hooton	
		Eco-Concrete for Precast Elements with Effective Mineral Micro- and Eco-Fillers **Presenters**: Gheorghe-Alexandru David, Joachim Juhart, Elke Krischey, Claudia Baldermann, Florian Mittermayr, Markus Krüger	
		Replacement of Cement with Waste Ceramic Powder in Cementitious Composites: Results of a Preliminary Investigation **Presenters**: Liberato Ferrara, Peter Deegan, Andrea Pattarini, Mohammed Sonebi and Su Taylor	
Conference Dinner *17.30-22.00*			

Wednesday 24/8 2016

Concrete with Supplementary Cementitious Materials

	Session	Paper	Chair
Session 1 *08.30-10.15* ***Location:*** Building 116 Aud-83	**Properties of Concrete with SCMs (Part 3)**	**Can Superabsorbent Polymers Mitigate Shrinkage in Cementitious Materials Blended with Supplementary Cementitious Materials?** **Presenters**: Didier Snoeck, Ole Mejlhede Jensen, Nele De Belie	**Marios Soutsos**
		Mitigation of Early Age Shrinkage in Selfconsolidating Paste Systems Using Superabsorbent Polymers **Presenters**: Syed Ali Rizwan, Shozab Mustafa, Waleed Ahmed	
		Predictions of the Mechanical Performance of Concrete made with Ternary Cements **Presenters**: Kim-Séang Lauch, Vinciane Dieryck, Benoit Parmentier	
		Comparison of the Expansion of Mortar Containing Shell Powder of Surf Clam and Scallop **Presenters**: Akio Watanabe, Kazumi Hirokawa, Takashi Kondo	
		Performance of Alusilica as Mineral Admixture in Cementitious Systems **Presenters**: Lin Chi, Ole Mejlhede Jensen	
Coffee Break *10.15-10.45*			
Session 2 *10.45-12.30* ***Location:*** Building 116 Aud-83	**RILEM week activities on SCMs (joint with the RILEM technical day)**		
	10.45 – 10.50	**Welcome and brief introduction to RILEMs technical work**	**Nicolas Roussel**
	10.50 – 11.20	**TC-238-SCM Hydration and Microstructure of Concrete with Supplementary Cementitious Materials**	**Nele De Belie**
	11.20 – 11.50	**Advances in Near-Neutral Salts Activation of Blast Furnace Slags**	**Gustavo Colonetti medallist Susan Bernal**
	11.50 – 12.20	**Assessing, Understanding and Unlocking Supplementary Cementitious Materials**	**Gustavo Colonetti medallist Ruben Snelllings**
	12.20 – 12.30	**Gustavo Colonnetti Medal Hand-Over Ceremony**	**Nicolas Roussel**
Lunch Break *12.30-13.30*			
Session 3 *13.30-15.00* ***Location:*** Building 116 Aud-83	**Durability (Part 2)**	**Carbonation Mechanism of Different Kinds of C-S-H: Rate and Products** **Presenters**: Bei Wu, Guang Ye	**Esperanza Menendez**
		Chloride Penetration in Concrete under Compression or Splitting Tensile Load Representing 60-65 Percent of the Ultimate Load **Presenters**: Hugo Egüez Alava, Nele De Belie, Geert De Schutter	
		Internal Curing of High Performance Concrete with Superabsorbent Polymers: Evaluation of Durability **Presenters**: Jennifer A. Canul-Polanco, Alejandro Durán-Herrera, Pedro L. Valdez-Tamez	
		Durability of Concrete made with Ternary Cements Containing Slag or Fly Ash and Limestone Filler	

		Presenters: Kim-Séang Lauch, Vinciane Dieryck	
Coffee Break *15.00-15.30*			
Session 4 *15.30-17.00* ***Location:*** Building 116 Aud-83	**Durability** **(Part 3)**	**Durability of High Volume Fly Ash Concrete** **Presenters:** Himabindu Myadaraboina, Mochamad Solikin, Indubhushan Patnaikuni	**Esperanza Menendez**
		Permeability of Ambient Cured Fly Ash Geopolymer Concrete Blended With Additives **Presenters:** Pradip Nath, Prabir Kumar Sarker	

MSSCE 2016 – Segment Programme

Monday 22/8 2016

Frost Action in Concrete

	Session	Paper	Author(s) (presenting author underlined)	Chairman
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** *Building 116 room 17*	**Concrete mix design** **- SCMs** **- special types of concrete**	WELCOME		**R. Doug Hooton**
		Towards an adequate deicing salt scaling resistance of high-volume fly ash (HVFA) concrete and concrete with superabsorbent polymers (SAPs)	Didier Snoeck Philip Van den Heede **Nele De Belie**	
		The salt-frost resistance of concrete with supplementary cementitious materials (SCM)	**Elisabeth Helsing** Peter Utgenannt	
		Foam index measurements on mixes of air entraining agents, super plasticizers and fly ash-cement-filler blends	**Stefan Jacobsen** Henrik Nordahl-Pedersen Hawar Omer Rasol Øyvind O. Lødemel Lori Tunstall George W. Scherer	
		Deicer-salt scaling of concrete containing fly ash	**Michael Thomas** Huang Yi	
		Influence of ductility and microcracking on the frost durability of cementitious composites with high volumes of fly ash	**Gürkan Yıldırım** Oğuzhan Öztürk Mustafa Şahmaran Mohamed Lachemi	

Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** *Building 116 room 17*	**Air void structure**	Correlation between characteristic distances of air voids as point processes and conventional spacing factors in mortars	Hidefumi Koto Takuma Murotani **Shin-Ichi Igarashi**	**Marianne Tange Hasholt**
		The influence of air void characteristics on freeze-thaw-salt resistance of pavement concretes	**Aljoša Šajna** Lado Bras	
		Methodology to analyse the salt frost scaling mechanism(s) in concrete with different binders	**Martin Strand** Katja Fridh	
		Linking surfactant molecular structure to mortar frost protection	**Lori E. Tunstall** George W. Scherer Robert K. Prud'Homme	
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* ***Location:*** *Building 116 room 17*	**Combined action**	The influence of carbonation and age on salt frost scaling of concrete with mineral additions	**Ingemar Löfgren** Oskar Esping Anders Lindvall	**Katja Fridh**
		The use of image analysis to quantify the orientation of cracks in concrete	Einar N. Andreassen **Andreas B. Elbrønd** Marianne T. Hasholt	
		Frost damage of concrete subject to confinement	**Marianne Tange Hasholt**	
		The influence of the freeze-thaw loading cycle on the ingress of chlorides in concrete	**Miguel Ferreira** Markku Leivo Hannele Kuosa David Lange	
		Water penetration into frost damaged concrete	**Peng Zhang** Yuan Cong Wanyu Zhao Wenchao Geng Zhengzheng Dai Tiejun Zhao	

Tuesday 23/8 2016

Frost Action in Concrete

	Session	Paper	Author(s) (presenting author underlined)	Chairman
Session 1 *08.30-10.15* ***Location:*** *Building 116 room 17*	**Frost damage - mechanism and modelling**	Freezing induced stresses in concrete-steel composite beams and effect of air voids	**Stefan Jacobsen** George W. Scherer	**Marianne Tange Hasholt**
		Modeling freezing of cementitious materials by considering process kinetics	**Francesco Pesavento** Dariusz Gawin	
		Experimental studies on frost-induced deterioration of concrete in Swedish hydroelectric structures	**Martin Rosenqvist** Katja Fridh Manouchehr Hassanzadeh	
		Identification of optimal condition for the de-icing salt scaling resistance of concrete	Samindi Samarakoon Samdar Kakay **Pål Lieske Tefre** Mats Buøen Vikrant Kaushal	
		Mitigation of deicer damage in concrete pavements caused by calcium oxychloride formation – Use of ground lightweight aggregates	**Prannoy Suraneni** Naomi Salgado Hunter Carolan Chang Li Vahid Jafari Azad O. Burkan Isgor Jason H. Ideker Jason Weiss	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** *Building 116 room 17*	**Measuring techniques and monitoring. Experience from field**	Non-destructive evaluation of concrete subjected to freeze-thaw cycles	**Sofía Aparicio** Javier Ranz Margarita G. Hernández José Javier Anaya Velayos	**Katja Fridh**
		Percolation in cementitious materials under freeze-thaw cycles investigated by means of electrical resistivity	**Zhendi Wang** Ling Wang Yan Yao	
		Frost resistance of concrete – Experience from long term field exposure	Dimitrios Boubitsas Peter Utgenannt Luping Tang **Elisabeth Helsing**	
		Freeze-Thaw-Attack on concrete structures – laboratory tests, monitoring, practical experience	**Frank Spörel**	
		Application of air entrained concrete in tollways constructions in Liaoning Province of China	Wencui Yang Xiaoping Cai **Yong Ge** Jie Yuan	

Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** *Building 116 room 17*	**Final discussion**	INTRODUCTION TO DISCUSSION CEN Freeze-thaw testing – Status and deficiencies (approach, acceptance criteria, methodology & research needs)	**<u>Terje F. Rønning</u>**	**R. Doug Hooton**
		DISCUSSION: Future research related to concrete frost resistance		
		CLOSURE		

MSSCE 2016 – Segment Programme

Monday 22/8 2016

Fresh Concrete

Monday 22/8	Session	Paper	Presenter	Chairman
08.45-09.00 ***Location:*** **Building 116, Room No 19**	**Welcome**	**Welcome**	**Lars Nyholm Thrane**	
Session 1 *09.00-10.15* ***Location:*** **Building 116, Room No 19**	**Mix design**	**Particle size distribution of supplementary cementitious materials and crushed sand fines: perspectives for micro-proportioning**	**Rolands Cepuritis**	**Lars Nyholm Thrane**
		Calcareous fly ash as component of self compacting concrete	**Jacek Gołaszewsk**	
		A modified mixed design method of concrete made with crushed brick aggregate	**Joyanta Pal**	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Building 116, Room No 19**	**Mix design**	**Quantification of the shape of particles for calculating specific surface area of powders**	**Yahya Ghasemi**	**Claus Vestergaard Nielsen**
		Computer aided mix design approach predicting concrete workability properties	**Annika Gram**	
		Extrusion of wood mortars: a process for optimizing their formulation and mechanical properties	**Jean Gerard Ndong Engone**	
		Assessment of value stream of formwork preparation process in prefabricating reinforced concrete elements	**Tor Gunnar Vilke**	
Lunch Break *12.30-13.30*				

Monday 22/8	Session	Paper	Presenter	Chairman
Session 3 *13.30-15.00* ***Location:*** **Building 116, Room No 19**	**Early age concrete**	**Practical experiences with early-age modelling of concrete properties**	**Claus Vestergaard Nielsen**	**Mohammed Sonebi**
		Establishing the curing procedure for precast RC members by early age simulations	**Yılmaz Akkaya**	
		Examining hydration kinetics obtained from different mixing procedures using isothermal calorimetry	**Oskar Linderoth**	
		Acoustic emission monitoring of fresh cementituos material	**Evin Dildar A Dzaye**	
Coffee Break *15.00-15.30*				
Session 4 *15.30-16.30* ***Location:*** **Building 116, Room No 19**	**Numerical simulations of flow**	**Numerical simulation of SCC casting: parameter determination**	**Ksenija Vasilic**	**Annika Gram**
		OpenFOAM casting solver with segregation	**Jon Elvar Wallevik**	
		Extrusion of semi-solid fibre-cement composites: process simulation and extruder design	**Xiangming Zhou**	
Session 5 *16.30-17.00* ***Location:*** **Building 116, Room No 19**	**Keynote lecture**	**High-Performance Concrete with Adapted Rheology**	**Kamal Khayat**	

Tuesday 23/8 2016

Fresh Concrete

Tuesday 23/8	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.15* ***Location:*** **Building 116, Room No 19**	**Rheology**	**The realtime assessment of the rheological parameters of SCC**	**Ivan Paric**	**Jon Elvar Wallevik**
		Rheology as tool to master fresh properties of concretes	**Violeta Bokan Bosiljkov**	
		The use of rheology in the selection of concrete with low environmental impact	**Claus Pade**	
		Use of thixotropy model to capture competition between paste deflocculation and sand particle migration	**Shiho Kawashima**	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.00* ***Location:*** **Building 116, Room No 19**	**Numerical simulations of flow**	**Concrete truck mixer as a rheometer – computational analysis using openFOAM**	**Jon Elvar Wallevik**	**Oldrich Svec**
		Simulating mixing processes of cementitious materials with water using DEM	**Knut Krenzer**	
		Casting of T-beam using the PFI material model – influence of thixotropy and structural breakdown	**Jon Elvar Wallevik**	
Session 3 *12.00-12.30* ***Location:*** **Building 116, Room No 19**	**Keynote lecture and Closing session**	**Fresh and early age concrete – Future R&D trends**	**Nicolas Roussel**	**Lars Nyholm Thrane**
Lunch Break *12.30-13.30*				
Conference Dinner *17.30-22.00*				

MSSCE 2016 – Segment Programme

Wednesday 24/8 2016

Cold Region Engineering

	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.15* ***Location:*** **Building 118, room 49**	**Structures**	**Welcome**	**Lisbeth M. Ottosen**	**Jessica Bak**
		Investigating the influence of cold climate conditions on structural dynamics	**Holger Koss**	
		Snowdrift – visualisation on an architectural model in wind tunnel testing	**Jennifer Fiebig**	
		Natural energy efficiency and sustainability (NEES) in design and construction in the northern and arctic periphery of Europe	**Mohamad Y. Mustafa**	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Building 118, room 49**	**Construction materials**	**Lightness in the Extreme: Cases of Lightweight Constructions in Polar Environments**	**Jessica Bak**	**Lisbeth M. Ottosen**
		Evaluation of the potential for using Greenlandic marine sediments for brick production	**Ida Maria Gieysztor Bertelsen**	
		Pre-dispersive technology and fabrication of composite insulation board made with brucite and chrysotile fibers	**Shuang Lu, Ping Yu, Zheng Wang**	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Building 118, room 49**		**Engineering properties of fibres from waste fishing nets**	**Ida Maria Gieysztor Bertelsen**	
		Recycled fishing nets as reinforcement of existing concrete structures	**Amanda Helena Bonnerup, Nina Marie Sigvardsen**	
		Characterization of particulate residues from Greenlandic MSWI for use as secondary resources	**Gunvor Marie Kirkelund**	
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* **Building 118, room 49**	**Environmental Technology**	**Polluted sediments in arctic harbors and electrodialytic remediation**	**Kristine Bondo Pedersen**	**Pernille E. Jensen**
		Potentials and challenges of biogas from fish industry waste in the arctic	**Pernille Erland Jensen**	
		A generic system for the selection and accreditation of best practices based on natural energy efficiency and sustainability in buildings	**Mohamad Y. Mustafa**	

MSSCE 2016 – Segment Programme

Monday 22/8 2016

Building Information Modelling in Civil Engineering - Open BIM in Education

	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.15* ***Location:*** **Building 116 Room 18-20**	**Keynotes**	**Introduction**	**Jan Karlshøj**	**Jan Karlshøj**
		Status and a vision of open BIM in architectural and engineering education in UK	**Arto Kiviniemi**	
		Open BIM in education in Norway	**Eilif Hjelseth**	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Building 116 Room 18-20**	**Open BIM in education**	**A case study of BIM education in residential construction**	**Carol Hon**	**Jan Karlshøj**
		BIM in engineering education – experiences with implementation in new and existing educations	**Kjeld Svidt**	
		Open BIM in courses in engineering education	**Flemming Vestergaard**	
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Building 116 Room 18-20**	**Open BIM in engineering design**	**Open BIM in course on advanced building design**	**Jan Karlshøj**	**Eilif Hjelseth**
		Green BIM – eco friendly sustainable design with building information modelling	**Nuthan Dummenahally**	
		Automated rule – based checking of level of development (LOD)	**Stavros Moiragias**	
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* ***Location:*** **Building 116 Room 18-20**	**Open BIM in engineering design**	**The BCF format as a mediator for task management in building design**	**Hussain Parsianfar**	**Arto Kiviniemi**
		Development of IFC based fire safety assessment tools	**Jan Karlshøj**	
		Information exchange structures for early-stage Building Performance Simulation	**Thomas Fænø Mondrup**	

Tuesday 23/8 2016

Building Information Modelling in Civil Engineering - Open BIM in Education

	Session	Paper	Presenter	Chairman
Session 1 *08.30-10.15* ***Location:*** **Building 116 Room 18-20**	**Advanced courses in open BIM**	**Cluster project at Technical University of Denmark – presentation only**	**Jan Karlshøj**	**Flemming Vestergaard**
		PhD course on Process and Data Modeling for the Built Environment – presentation only	**Jan Karlshøj**	
Coffee Break *10.15-10.45*				
Session 2 *10.45-12.30* ***Location:*** **Building 116 Room 18-20**	**Workshop: Educational needs in generate requirements**	**IDM methodology**	**Moderator Jan Karlshøj**	**Eilif Hjelseth**
		Client's needs		
		Discussion		
		Educational aspects		
Lunch Break *12.30-13.30*				
Session 3 *13.30-15.00* ***Location:*** **Building 116 Room 18-20**	**Workshop: Research topics and methodologies**	**Research topics**	**Moderator Eilif Hjelseth**	**Jan Karlshøj**
		Research methodologies		
		Researching in practice		
		Summary		
Coffee Break *15.00-15.30*				
Session 4 *15.30-17.00* ***Location:*** **Building 116 Room 18-20**	**Workshop: Open BIM curriculum**	**Process flow and standards**	**Moderator Jan Karlshøj**	**Arto Kiviniemi**
		Data formats, data models and communication		
		Collaboration and social science		
		Sharing teaching material and exercises		
Conference Dinner *17.30-22.00*				

MSSCE 2016 – Segment Programme

Monday 22/8 2016

Building Materials and Indoor Environment

Session 1 *08.30-10.15*	**No sessions**		
Coffee Break *10.15-10.45*			
Session 2 *10.45-12.30*	**No sessions**		
Lunch Break *12.30-13.30*			
Session 3 *13.30-15.00* ***Location:*** Building 116 Room 42	**TEST AND LABELLING OF EMISSIONS FROM BUILDING MATERIALS: EUROPEAN PERSPECTIVE** Several labelling schemes for (building) material emissions exist in Europe and regulations and labelling requirements are in place in several member states in the EU. New EN and ISO test standards are published and at the same time expert groups under the European Commission are working on development of harmonized health-based reference values for the assessment of product emissions, the so-called Lowest Concentration of Interest (LCI) concept and emission classes for CE-marking. There is now a tendency towards harmonization of the methods for test and assessment of emissions used by the mandatory and voluntary labelling schemes. Status and trends in test, assessment and labelling of material emissions will be presented and discussed at the workshop.		
13:30-13:50	**Trends in European Labelling**	Thomas Witterseh	Danish Technological Institute
13:50-14:20	**Methods for emission testing of construction products – volatile compounds and sensory evaluation**	Helene Klinke	Danish Technological Institute
14:20-14:40	**EU-LCI values and emission classes for evaluation of emissions**	Thomas Witterseh	Danish Technological Institute
14:40-15:00	**Discussion and sharing of experiences**	All participants	
Coffee Break *15.00-15.30*			
Session 4 *15.30-17.00* ***Location:*** Building 116 Room 42	**PCB IN BUILDINGS – THE PROBLEM AND ITS REMEDIATION** PCB is a group of man-made chemicals that never should have been used. It has high solubility in lipids and very low in water. Animals and humans have very limited ability to decompose or excrete PCB. PCB inhaled or ingested bio-magnify in the food chain when predators accumulate PCB from their prey. PCB has low acute toxicity to humans. The severe long term health effects from accumulated PCB over years include endocrine disruption, cancer and neurological effects. Due to attractive technical properties like chemical stability, low evaporation, flame resistance, low electrical conductivity and the ability to plasticize polymers, PCB reached widespread use before the slowly emerging health and environmental effects were acknowledged. PCB was used in construction as plasticizer of caulking and in soft or fire resistant paints in the period from 1950'ties to the end of the seventies. The use in electronics and in particular lighting ballast capacitors lasted until the end of the eighties. A significant fraction of buildings have widespread PCB contamination causing health hazards to occupants. Further this contamination is a big challenge In relation to construction waste.		
15:30-15:45	**The PCB problem indoors**	**Barbara Kolarik**	**SBi, Aalborg University**
15:45-16:00	**Health effects of indoor PCB exposure**	**Allan Astrup Jensen**	**Nordic Institute of Sustainability, Environmental Chemistry and Toxicology**
16:00-16:15	**Mitigation in practice – a case story**	**Marie Frederiksen**	**SBi, Aalborg University**
16:15-16:30	**Assessment of PCB in buildings**	**Helle Vibeke Andersen**	**SBi, Aalborg University**
16:30-16:45	**Are there any shortcuts in mitigation of PCB in buildings?**	**Lars Gunnarsen**	**SBi, Aalborg University**
16:45-17:00	**Sharing of experiences with PCB in buildings and discussion of findings**	All participants	

Materials, Systems and Structures in Civil Engineering
MSSCE 2016
15-29. august 2016 Lyngby, Denmark

Technical University of Denmark
DANISH TECHNOLOGICAL INSTITUTE
cost
CITY OF COPENHAGEN
Ingeborg og Leo Dannins Legat for Videnskabelig Forskning
LARSEN & NIELSEN FONDEN
Knud Højgaards Fond

- Program
- **Technical Day**
- TC meetings
- Administrative meetings

TECHNICAL DAY

Program | **Technical Day** | TC meetings | Administrative meetings

Everyone is welcome to participate in the RILEM Technical day on Wednesday 24/08/16 from 10.15 until 15.00.

Draft program for the RILEM Technical day Wednesday 24th 2016

10:15-10:45
Coffee break

10:45-10:50
Welcome and brief introduction to RILEMs technical work, TAC chair **Nicolas Roussel**

10:50-11:20
TC-238-SCM Hydration and microstructure of concrete with supplementary cementitious materials, Chaired by **Nele De Belie**

11:20-11:50
Gustavo Colonnetti medalist **Susan Bernal** « Advances in near-neutral salts activation of blast furnace slags »

11:50-12:20
Gustavo Colonnetti medalist **Ruben Snellings** « Assessing, Understanding and Unlocking Supplementary Cementitious Materials »

12:20-12:30
Gustavo Colonnetti medal hand-over ceremony, **Nicolas Roussel**

12:30-13:30
Lunch

13:30-14:00
TC-248-MMB Methods of measuring moisture in building materials and structures, chaired by **Lars-Olof Nilsson**

14:00-14:30
TC-246-TDC Test methods to determine durability of concrete under combined environmental actions and mechanicalload, chaired by **Yan Yao,** presented by Prof. Dr. Juan LI from China Building Materials Academy

14:30-15:00
TC-230-PSC Performance-based specifications and control of concrete durability, chaired by **Hans D. Beushausen**

15:00-15:30
Coffee break

Important dates

24 August — Technical Day

DTU Civil Engineering.
Department of Civil Engineering
Brovej, Building 118
2800 Kgs. Lyngby
Denmark
Tlf.: 45 25 18 67
www.dtu.dk

MSSCE 2016 – COST TU1301 draft programme

Core Group Meeting draft programme - 22/08/2016

14.00 – 15.00	Core Group Meeting ***(building 116: room 45)***
15.00 – 15.30	**Coffee break**
15.30 – 17.00	Core Group Meeting ***(building 116: room 45)***
17.00 – 19.00	**Pancake reception at the Copenhagen City Hall**

Workshop – Round Table – MC Meeting draft programme – 23/08/2016

08.15 – 08.30	Registration and signing attendance list
08.30 – 10.15	COST NORM4Building –SCM session *"Supplementary cementitious materials & NORMs"* ***(building 116: auditorium 83)***
	• 8,30-9,00 (invited speaker) 'Novel cementing binders and NORMs' (**John Provis**) • 9.00-9.15 Production of ceramics using bottom ash and fly ash from a thermal power plant (**Biljana Angjusheva**, Emilija Fidancevska, Vilma Ducman and Ljubica Vladicevska) • 9.15-9.30 Sintering of ceramics based on mechanically activated fly ash (**Emilija Fidanchevski**, Jorg Bossert, Biljana Angjusheva, Vojo Jovanov and Vineta Srebrenkoska) • 9.30-9.45 Pavel Krivenko, **Oleksandr Kovalchuk** and Valentina Grabovchuk High volume fly ash alkali activated cements and concretes for indoor application • 9.45-10.00 Radiological study of cements and geopolymers (Francisca Puertas, **Catalina Gasco**, Luis Yague, Nuria Navarro, José Antonio Suarez, Mar Alonso, Manuel Torres and Patricia Rivilla) • 10.00- 10.15 **Discussion**
10.15 – 10.45	**Coffee break** (change to room 42)
10.45 – 12.30	COST NORM4Building session "Radiological effluents from construction materials that influence the (indoor) environment" ***(building 116: room 42)***
	• 10.45-11.15 'Current status of the implementation of the EU-BSS: radiological guidelines for the building materials of tomorrow.' (**Rob Wiegers**) • 11.15-11.45 Should natural radioactivity in construction materials be considered in an environmental impact assessment? (**Rainer**

	Gellermann, Chr. Ahrens) • 11.45 – 12.15 Studying the impact of NORM containing construction materials on the environment. (Hildegarde Vandenhove, **Nathalie Vanhoudt,** Nathalie Impens) • 12.15-12.30 Building a European NORM association to support the safe reuse of NORM in Europe (**Christian Kunze**)
12.30 – 13.30	**LUNCH**
13.30 – 15.00	Round table with panel discussions ***(building 116: room 42)***
15.00 – 15.30	**Coffee break** (change to building 101)
15.30 – 17.00	MC Meeting ***(building 101: room S01)***

18.30 – 22.00	**Dinner with COST members in Copenhagen City** The Olive KITCHEN & BAR Nørregade 22, 1165 Copenhagen www.theolive.dk / info@theolive.dk

NORM Association Meeting + WG Meeting draft programme – 24/08/2016

09.00 – 10.15	NORM Association Meeting ***(building 116: room 45)***
10.15 – 10.45	**Coffee break**
10.45 – 12.30	NORM Association Meeting ***(building 116: room 45)***

12.30 – 13.30	**LUNCH** + signing the attendance list

13.30 – 15.00	WG Meeting ***(building 116: room 42 – room 44 – room 45)***
15.00 – 15.30	**Coffee break**
15.30 – 17.00	WG Meeting ***(building 116: room 42 – room 44 – room 45)***

18.30 – 22.00	**Dinner with COST members in Copenhagen City** Ristorante Italiano Fiolstræde 2, 1171 Copenhagen www.italiano.dk / info@italiano.dk

Overview program, DTU-COST-RILEM Doctoral Course

Service life of Cement-based Materials and Structures

Technical University of Denmark, Lyngby, Denmark, 15-19 August 2016

Organized by: Ole Mejlhede Jensen, Konstantin Kovler, Stéphanie Staquet and Miguel Azenha

	Monday 15	Tuesday 16	Wednesday 17	Thursday 18	Friday 19
8^{00}					
9^{00}	1. Introduction to course and presentation of participants (omj)	6. Autogenous deformation Lecture (omj)	10. Restrained deformation Lecture (sst)	14. Thermo-mechanical modelling Lecture (maz)	19. Preparation of participant presentations (omj)
10^{00}	Coffee	Coffee	Coffee	Coffee	Coffee
11^{00}	2. Cement and binders Lecture (kko)	7. Elastic properties Lecture (jlg)	11. Restrained deformation Exercise (sst)	15. Modelling of concrete structures at early age Lecture (dsc)	19. Preparation of participant presentations cont.
12^{00}	Lunch	Lunch	Lunch	Lunch	Lunch
13^{00}			Group photo		
14^{00}	3. Lab preparations Lecture (maz)	8. Creep and relaxation Lecture (sst)	12. Ring test Lecture (maz)	16. Lab A & B written exercise (sst)	20. Participant presentations (omj)
15^{00}	Coffee	Coffee	Coffee	Coffee	Coffee
16^{00}	4. Lab exercise Part A (sst)	9. Lab exercise Part B (sst)	13. Ring test Exercise (sst)	17. Study tour	20. Participant presentations cont.
17^{00}	5. Barbecue		Jury meeting		Closure
18^{00}				18. Course dinner	

Module responsible: Miguel Azenha (maz), Jose Granja (jlg), Ole Mejlhede Jensen (omj), Konstantin Kovler (kko), Dirk Schlicke (dsc), Stéphanie Staquet (sst) Rev. 15.8.16

Venue: Technical University of Denmark (DTU), Brovej, Building 118, Room 007.

21 participants; 5 groups with 4 students

Instructors:
Kurt Kielsgaard Hansen (KKH)
Carsten Rode (CAR)
Anker Nielsen (AN)
Lars Wadsö (LW)

The program for the doctoral course is tentative:
Monday 15 August at 08:30 hrs.

08:30-10:00 Welcome and introduction to the course
Short presentation of teachers and participants. Participants note on list: Name, affiliation, title on home project
Introduction to laboratory working environment and safety (1 hour) (KKH)
10:00-12:00 Theory lessons, examples, exercises (CAR)
12:00-13:00 Lunch
13:00-17:00 Laboratory work. Each group choses two porous materials – silicate and wood based, respectively - as their material for all laboratory tests during the course
Materials: Aerated concrete, gypsum board, calcium silicate board, burned brick, unburned brick, wood1 – Laminated Veneer Lumber (axial, tangential), wood2 – spruce (axial, radial, tangential)
Start of laboratory work that takes long time until steady state:

I) Sorption isotherm measurements
   a) In Dynamic Vapor Sorption (DVS) equipment
   b) In desiccators (without vacuum)
   c) In climate chambers (4 chambers available)
II) Suction measurements. 5 bar and 15 bar extractors. Porous plates and specimens for capillary saturation

Lesson: Accreditation of measurements (2 times) (AN)
Barbeque reception, 17.30 – 19.30 hrs. in front of Building 118, DTU

Tuesday 16 August at 08:30 hrs.

08:30-12:00 Presentation of all PhD-students' home project. Each PhD-student: 12 minutes + 3 minutes discussion
12:00-13:00 Lunch
13:00-15:00 Presentation of all PhD-students' home project (continued)
15:00-17:00 Laboratory work.

III) Measurements of porosity and densities
IV) Measurements of water vapor permeability (3 parallel specimens for wet cup and for dry cup)
   a) Specimens fixed in plexiglass (perplex) rings by use of epoxy (no masked edge)
   b) Specimens not inserted in plexiglass rings i.e. specimen perimeter shadowed by cup tightening of specimen (masked edge). Common exercise on aerated concrete
V) Dry-out experiments start up (aerated concrete, gypsum board, calcium silicate board, burned brick). Cases: 1) Without air velocity, with low air velocity, with high air velocity around specimens. Find critical moisture content

Students make continued measurements on setup from Day 1

Wednesday 17 August at 08:30 hrs.

08:30-09:00 Exercise results from Monday
09:00-11:00 Theory lessons, examples, excercises (CAR)
11:00-12:00 Laboratory work. Students make continued measurements on setup from Day 1 and Day 2
12:00-13:00 Lunch
13:00-15:30 Laboratory work. Students make continued measurements on setup from Day 1 and Day 2
15:30-17:00 Senior Research Engineer Carsten Gundlach, DTU Physics: Introduction to 3D X-ray scanning

Thursday 18 August at 08:30 hrs.

08:30-09:00 Exercise results from Wednesday
09:00-10:00 Theory lesson, examples, excercises (CAR)
10:00-12:00 Calculation exercise (AN)
Critical analysis of measurements and results (AN)
Uncertainty in measurements (AN)
Discussion
12:00-13:00 Lunch
13:00-15.30 Students make continued measurements on setup from Day 1, Day 2 and Day 3
15.45-18:00 Study tour. Starts from DTU, building 101
18:00-20:00 PhD course dinner at DTU for all PhD-students

Friday 19 August at 08:30

08:30-09:00 Exercise results from Thursday
09:00-11:00 Theory lessons, examples, exercises (CAR)
11:00-12:00 Students make continued measurements on set-up from Day 1, Day 2, Day 3 and Day 4
12:00-13:00 Lunch
13:00-15:00 Start on reporting of measurements and comparison to theory. Each group is responsible for a specific measuring technique.
15:00-17:00 Presentation of preliminary status for the groups. Each group is responsible for a specific measuring technique. Each group: 20 minutes including discussion

(Conference 21 – 24 August)

Thursday 25 August at 08:30

08:30-10:00 Laboratory work. Students make continued measurements on set-up from first week
10:00-12:00 Professor Lars Wadsö, Lund University: Introduction to laboratory exercises on Lund University Friday 26 August
12:00-13:00 Lunch
13:00-14:00 Professor Lars Wadsö (continued)
14:00-17:00 Laboratory work. Students make continued measurements on set-up from first week

Friday 26 August at **08:00**

08:00 Departure from DTU by bus. Arrival 09:30 at Lund University, Sweden. *ALL STUDENTS: Do remember to bring your passport. Everyone is recommended to check what other documents they might need for their entry into Sweden.*
10:00 to 12:30 Laboratory exercises, part A (LW)
12:30 to 13:15 Lunch
13:15 to 14:30 Lab tour (LW)
14:30 to 17:00 Laboratory exercises, part B (LW)
17:00 to 18:00 Plenum: Discussion of observations and measurement results
18:15 Departure from Lund University by bus. Arrival 20:00 at DTU

Saturday 27 August

09:00-10:00 Analysis of experiments from first week and from Lund University. Discussion with instructors
10:00-11:00 How to use measurement data as input data for simulation programs as Delphin and WUFI (CAR)
11:00-12:00 Laboratory work. Students make continued measurements on set-up from first week
12:00-13:00 Lunch
13:00-17:00 Laboratory work. Students make continued measurements on set-up from first week
Evening: Barbecue to be arranged

Sunday 28 August

09:00-10:00 Analysis of experiments from first week
10:00-12:00 Laboratory work. Students make continued measurements on set-up from first week
12:00-13:00 Lunch
13:00-17:00 Reporting of measurements and comparison to theory. Each group is responsible for a specific measuring technique: Exchange of results from other groups and short comparison and analysis of results. Start preparing poster and PowerPoint presentation for Monday

Monday 29 August at 08:30 hrs.

08:30-10:30 Poster and PowerPoint presentation finalization
10:30-12:30 Examination: Each group presents their poster and supply with PowerPoint presentation (45 minutes per group). Instructors comment the findings.
The presentation is expected to include:
- All measurements and results made by the group
- As responsible for a specific measuring technique: Exchange of results from this technique and short comparison and analysis of results.
12:30-13:30 Lunch
13:30-16:30 Examination continued
16:30-17:00 Evaluation and closure

Note: Lessons will be based on lecture notes, scientific papers and copy of presentations.

Overview program, DTU-RILEM Doctoral Course

Concrete with Supplementary Cementitious Materials

Technical University of Denmark, Lyngby, Denmark, 15-19 August 2016

Organized by: Ole Mejlhede Jensen, Konstantin Kovler and Nele de Belie

	Monday 15	Tuesday 16	Wednesday 17	Thursday 18	Friday 19
8^{00}					
9^{00}	1. Introduction to course and presentation of participants (omj)	6. Autogenous deformation Lecture (omj)	10. Hydration of cements Lecture (blo)	14. Sustainability Lecture (ndb)	19. Preparation of participant presentations (omj)
10^{00}	Coffee	Coffee	Coffee	Coffee	Coffee
11^{00}	2. Cement and binders Lecture (kko)	7. Elastic properties Lecture (jlg)	11. Durability – general aspects Lecture (ndb)	15. Characterization methods Lecture (blo)	19. Preparation of participant presentations cont.
12^{00}	Lunch	Lunch	Lunch	Lunch	Lunch
13^{00}				Group photo	
14^{00}	3. Lab preparations Lecture (maz)	8. Creep and relaxation Lecture (sst)	12. Durability – shrinkage & self-healing Lecture (dsn)	16. Lab A & B written exercise (sst)	20. Participant presentations (omj)
15^{00}	Coffee	Coffee	Coffee	Coffee	Coffee
16^{00}	4. Lab exercise Part A (sst)	9. Lab exercise Part B (sst)	13. Effect of SCMs Lecture (blo)	17. Study tour	20. Participant presentations cont.
17^{00}	5. Barbecue		Jury meeting		Closure
18^{00}				18. Course dinner	

Module responsible: Miguel Azenha (maz), Nele De Belie (ndb), Jose Granja (jlg), Ole Mejlhede Jensen (omj), Konstantin Kovler (kko), Barbara Lothenbach (blo), Didier Snoeck (dsn), Stéphanie Staquet (sst)

Rev. 15.8.16

Overview program, DTU-RILEM Doctoral Course

Concrete and Radiological Aspects

Technical University of Denmark, Lyngby, Denmark, 15-19 August 2016

Organized by: Ole Mejlhede Jensen, Zoltán Sas and Wrouter Schroeyers

	Monday 15	Tuesday 16	Wednesday 17	Thursday 18	Friday 19
8^{00}					
9^{00}	1. Introduction to course and presentation of participants (omj)	6. Autogenous deformation Lecture (omj)	10. Introduction NORM & Construction Lecture (wsc)	14. Radon emanation and exhalation Practical exercise (zsa)	19. Preparation of participant presentations (omj)
10^{00}	Coffee	Coffee	Coffee	Coffee	Coffee
11^{00}	2. Cement and binders Lecture (kko)	7. Elastic properties Lecture (jlg)	11. Sampling & measurement challenges Lecture (wsc)	15. Radon emanation and exhalation cont. Practical exercise (zsa)	19. Preparation of participant presentations cont.
12^{00}	Lunch	Lunch	Lunch	Lunch	Lunch
13^{00}				Group photo	
14^{00}	3. Lab preparations Lecture (maz)	8. Creep and relaxation Lecture (sst)	12. Dose of workers under indoor and outdoor circumstanc. Lecture (zsa)	16. Lab A & B written exercise (sst)	20. Participant presentations (omj)
15^{00}	Coffee	Coffee	Coffee	Coffee	Coffee
16^{00}	4. Lab exercise Part A (sst)	9. Lab exercise Part B (sst)	13. External gamma dose assessment from building mat. Practical exercise (zsa)	17. Study tour	20. Participant presentations cont.
17^{00}	5. Barbecue		Jury meeting		Closure
18^{00}				18. Course dinner	

Module responsible: Miguel Azenha (maz), Jose Granja (jlg), Ole Mejlhede Jensen (omj), Konstantin Kovler (kko), Zoltán Sas (zsa), Wouter Schroeyers (wsc), Stéphanie Staquet (sst)

Rev. 15.8.16

MSSCE 2016 – Doctoral Course Programme

Monday 15/8 2016

BIM in Civil Engineering - focusing on open standards

	Module	Type of activity	Lecturer
Module 1 *08.30-11.00* ***Location:*** **Building 101** **Room S16**	**Introduction to BuildingSMART principles** • Purpose • Organisation • Contents • Implementation	**Lecture**	**Jan Karlshøj**
Coffee Break *11.00-11.30*			
Module 2 *11.30-12.30* ***Location:*** **Building 101** **Room S16**	**Information Delivery Manuals(IDM), part 1** • Business case • Process map • BPMN • Exchange requirement • Software implementation • IDM server	**Lecture**	**Jan Karlshøj**
Lunch Break *12.30-13.30*			
Module 3 *13.30-15.00* ***Location:*** **Building 101** **Room S16**	**Interaction Framework, ISO 29841, part 1 and 2** • Structure • Interaction map • Messages • Software implementation	**Lecture**	**Jan Karlshøj**
Coffee Break *15.00-15.30*			
Module 4 *15.30-17.00* ***Location:*** **Building 101** **Room S16**	**Develop an Information Delivery Manual**	**Exercise**	**Jan Karlshøj**

Tuesday 16/8 2016

BIM in Civil Engineering - focusing on open standards

	Module	Type of activity	Lecturer
Module 1 *08.30-11.00* ***Location:*** **Building 101** **Room S16**	**Industry Foundation Classes #1** • Overview • History • Express • ExpressG • Structure	**Lecture**	**Jan Karlshøj**
Coffee Break *11.00-11.30*			
Module 2 *11.30-12.30* ***Location:*** **Building 101** **Room S16**	**Industry Foundation Classes #2** • Spatial Structure • Core layer	**Lecture**	**Jan Karlshøj**
Lunch Break *12.30-13.30*			
Module 3 *13.30-15.00* ***Location:*** **Building 101** **Room S16**	**Industry Foundation Classes #3** • Interoperability layer • Domain	**Lecture**	**Jan Karlshøj**
Coffee Break *15.00-15.30*			
Module 4 *15.30-17.00* ***Location:*** **Building 101** **Room S16**	**Identifying IFC entities, properties and relations**	**Exercise**	**Jan Karlshøj**

Wednesday 17/8 2016

BIM in Civil Engineering - focusing on open standards

	Module	Type of activity	Lecturer

Module 1
08.30-11.00
 	
Location:
Building 101
Room S16
	Industry Foundation Classes #4
	• Resource layer
	  • Geometry
	  • Location
	  • Cost
	  • Classification
		Lecture	**Jan Karlshøj**

Coffee Break *11.00-11.30*			
Module 2 *11.30-12.30* ***Location:*** **Building 101** **Room S16**	**Industry Foundation Classes #5** • Infrastructure	**Lecture**	**Jan Karlshøj**
Lunch Break *12.30-13.30*			
Module 3 *13.30-15.00* ***Location:*** **Building 101** **Room S16**	**BIM Collaboration Format (BCF)** • Purpose • Structure • Experiences • Tools	**Lecture**	**Jan Karlshøj**
Coffee Break *15.00-15.30*			
Module 4 *15.30-17.00* ***Location:*** **Building 101** **Room S16**	**Identifying IFC entities, properties and relations. #2, BCF use cases.**	**Exercise**	**Jan Karlshøj**

Thursday 18/8 2016

BIM in Civil Engineering - focusing on open standards

	Module	Type of activity	Lecturer
Module 1 *08.30-11.00* ***Location:*** **Building 101** **Room S16**	**Model View Definition** • Subset of IFC specification • Mandatory or optional content • Software implementation • mvdXML	**Lecture**	**Jan Karlshøj**
Coffee Break *11.00-11.30*			
Module 2 *11.30-12.30* ***Location:*** **Building 101** **Room S16**	**Certification** • Software certification • Human certification • Data Validation	**Lecture**	**Jan Karlshøj**
Lunch Break *12.30-13.30*			
Module 3 *13.30-15.00* ***Location:*** **Building 101** **Room S16**	**Tool for generation of documentation, mvdXML** • COBie • ifcDOC • Jason • OWL	**Lecture**	**Jan Karlshøj** **Tim Chipman**
Coffee Break *15.00-15.30*			
Module 4 *15.30-17.00* ***Location:*** **Building 101** **Room S16**	**Generation of a Model View Definition**	**Exercise**	**Jan Karlshøj**

Friday 19/8 2016

BIM in Civil Engineering - focusing on open standards

	Module	Type of activity	Lecturer
Module 1 *08.30-11.00* ***Location:*** **Building 101** **Room S16**	**BuildingSMART Data Dictionary (bsDD)** • Structure • Contents • Software implementation guidance	**Lecture**	**Håvard Bell**
Coffee Break *11.00-11.30*			
Module 2 *11.30-12.30* ***Location:*** **Building 101** **Room S16**	**Model Server** • Principles • Commercial servers • Open source model server • Query languages	**Lecture** •	**Väino Tarandi**
Lunch Break *12.30-13.30*			
Module 3 *13.30-15.00* ***Location:*** **Building 101** **Room S16**	**Closing** • Repetition	**Lecture**	**Jan Karlshøj**
Coffee Break *15.00-15.30*			
Module 4 *15.30-17.00* ***Location:*** **Building 101** **Room S16**	**Questions and answers regarding reports.**	**Exercise**	**Jan Karlshøj**

MSSCE 2016 – Doctoral Course Programme

Monday 15/8 2016

Clay and shale

	Module	Type of activity	Lecturer
Module 1 *08.30-10.15* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Crystal structures, chemistry and formation of clay minerals** Building 101 DTU	**lecture**	**Emil Makovicky**
Coffee Break *10.15-10.45*			
Module 2 *10.45-12.30* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Demonstration of clay preparation methods and powder diffraction analysis**	**laboratory**	**Louise J. Belmonte, Emil Makovicky**
Lunch Break *12.30-13.30*			
Module 3 *13.30-15.00* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Crystal structures, chemistry and formation of clay minerals; selected practical points** Building 101 DTU	**lecture**	**Emil Makovicky**
Coffee Break *15.00-15.30*			
Module 4 *15.30-17.00* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Mineral determination practicals**	**Practical exercise**	**Emil Makovicky, L.J. Belmonte**
Barbecue in Grønnegården, DTU *17.15-19.15*			

Tuesday 16/8 2016

Clay and shale

	Module	Type of activity	Lecturer
Module 1 *08.30-10.15* ***Location:*** **DTU Buiding 101 Room S07**	**Electrochemistry of the clay surfaces.** Theory of the electrical double layer with speciation. Exercises related to the computation of the mineral surface charge. Connection with the cation exchange capacity. The Donnan model. Influence of the electrical double layer regarding the composition of the pore water.	Lecture and exercises	**André Revil**
Coffee Break *10.15-10.45*			
Module 2 *10.45-12.30* ***Location:*** **DTU Buiding 101 Room S07**	**Observations regarding transport properties.** Observations associated with the osmotic pressure. Observations associated with coupling properties. Electrokinetic effects. Reverse osmosis. The diffusion of ions in clay	Lecture and exercises	**André Revil**
Lunch Break *12.30-13.30*			
Module 3 *13.30-15.00* ***Location:*** **DTU Buiding 101 Room S07**	**Theory** The constitutive equations with cross-coupling effects. Where they are coming from? How they can be modeled? A fundamental theory in unsaturated conditions.	Lecture and exercises	**André Revil**
Coffee Break *15.00-15.30*			
Module 4 *15.30-17.00* ***Location:*** **DTU Buiding 101 Room S07**	**Predictions and comparison with data.** Application to the modelling of electrokinetic properties. Application to the modelling of the reverse osmosis in bentonite. Application to the modelling of the mutual diffusion coefficient of NaCl in bentonite.	Lecture and exercises	**André Revil**
Poster session , DTU Building 101, Room s07 19.00 -21.00			

Wednesday 17/8 2016

Clay and shale

	Module	Type of activity	Lecturer
Module 1 *08.30-10.15* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Constitutive modelling of clay: An introduction to elastoplasticity**	**Lecture**	**Lars Vabbersgaard Andersen** ***Associate Professor*** ***Dept. Civil Engineering*** ***Aalborg University*** ***Denmark***
Coffee Break *10.15-10.45*			
Module 2 *10.45-12.30* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Constitutive modelling of clay: Implementation in finite-element models**	**Lecture**	**Lars Vabbersgaard Andersen** ***Associate Professor*** ***Dept. Civil Engineering*** ***Aalborg University*** ***Denmark***
Lunch Break *12.30-13.30*			
Module 3 *13.30-15.00* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Constitutive modelling of clay: Critical-state soil mechanics, consolidation and effective stresses**	**Lecture**	**Lars Vabbersgaard Andersen** ***Associate Professor*** ***Dept. Civil Engineering*** ***Aalborg University*** ***Denmark***
Coffee Break *15.00-15.30*			
Module 4 *15.30-17.00* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Constitutive modelling of clay: Example models in commercial software**	**Lecture and workshop**	**Lars Vabbersgaard Andersen** ***Associate Professor*** ***Dept. Civil Engineering*** ***Aalborg University*** ***Denmark***

Thursday 18/8 2016

Clay and shale

	Module	Type of activity	Lecturer
Module 1 *08.30-10.15* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Challenges and opportunities of shales in the oil industry: Borehole stability during drilling, Shale barriers around cased wells, Source rocks and oil / gas shales, Fracturing, 4D seismic monitoring of reservoirs through the overburden**	**Lecture**	**Rune M Holt**
Coffee Break *10.15-10.45*			
Module 2 *10.45-12.30* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Shale Rock Physics & Mechanics: Fundamentals of elastic anisotropy.**	**Lecture + Classroom exercise**	**Rune M Holt**
Lunch Break *12.30-13.30*			
Module 3 *13.30-15.00* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Shale Rock Physics: Observations of elastic wave velocities in shales, and how they relate to porosity, mineralogy, stress, temperature and frequency.**	**Lecture + Classroom exercise**	**Rune M Holt**
Coffee Break *15.00-15.30*			
Module 4 *15.30-17.00* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Shale Rock Mechanics: Laboratory experiments, static moduli and strength, water sensitivity, anisotropic behaviour, creep. Static and dynamic moduli.**	**Lecture**	**Rune M Holt**
Dinner at the DTU Canteen *18.30-21.00*			

Friday 19/8 2016

Clay and shale

	Module	Type of activity	Lecturer
Module 1 *08.30-10.15* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Fehmarn Belt Fixed Link**	**Leccture**	**Niels Foged**
Coffee Break *10.15-10.45*			
Module 2 *10.45-12.30* ***Location:*** **DTU** **Buiding 101** **Room S07**	**Fehmarn Belt Fixed Link**	**Leccture**	**Niels Foged**
Lunch Break *12.30-13.30*			
Module 3 *13.30-15.00* ***Location:*** **DTU** **Buiding 101** **Room S07**	Practical shale petrophysics	**Leccture**	**Finn Engstrøm**
Coffee Break *15.00-15.30*			
Module 4 *15.30-17.00* ***Location:*** **DTU** **Buiding 101** **Room S07**	Practical shale petrophysics	**Leccture**	**Finn Engstrøm**

70th RILEM Week 2016, Lyngby, Denmark

Draft time table

Date	MSSCE2016	RILEM Week	Technical Committee meetings		
Monday 15/08/2016					
Tuesday 16/08/2016					
Wednesday 17/08/2016					
Thursday 18/08/2016					
Friday 19/08/2016					

Sunday 21/08/2016		8:30-10:15 ***B101 Rs02*** **Educational Activities Committee (EAC)**	9:00-10:15 ***B101 Rs07*** **TC 255-FRS**	8:30-10:15 ***B101 Rs10-s11*** **TC MRP**	9:00-10:15 ***B101 Rs12-13*** **TC 248-MMB**
	10:15-10:45 Coffee Break				
		10:45-12:30 ***B101 Rs04*** **Board of Editors (BOE)**	10:45-12:00 ***B101 Rs07*** **TC 255-FRS**	10:45-11:30 ***B101 Rs10-s11*** **TC MRP**	10:45-12:30 ***B101 Rs12-13*** **TC 248-MMB**
	12:30-13:30 Lunch break				
	13:30-15:00 **Technical tour to Open Air Museum**	13:30-15:00 ***B101 Rs02*** **Development Advisory Committee (DAC)**	13:30-15:00 ***B101 Rs04*** **Technical Activities Committee (TAC)**	13:30-15:00 ***B101 Rs06*** **TC 238-SCM**	13:30-15:00 ***B101 Rs12-13*** **TC 248-MMB**
		15:00-15:30 Coffee Break			
	15:30-16:30 **Technical tour to Open Air Museum**	15:30-17:00 ***B101 Rs02*** **Development Advisory Committee (DAC)**	15:30-17:00 ***B101 Rs04*** **Technical Activities Committee (TAC)**	15:30-17:00 ***B101 Rs06*** **TC 238-SCM**	15:30-17:00 ***B101 Rs12-13*** **TC 248-MMB**
	17:00-19:00 **Official MSSCE2016 conference opening**				
	19:00-20:00 **Conference reception buffet**				
Monday 22/08/2016	8:30-10:15 ***B116*** **MSSCE2016 sessions and workshops**	08:30-10:15 ***B101 Rs02*** **Development Advisory Committee (DAC)**	08:30-10:15 ***B101 Rs04*** **Technical Activities Committee (TAC)**		
	10:15-10:45 Coffee Break				
	10:45-12:30 ***B116*** **MSSCE2016 sessions and workshops**	10:45-12:30 ***B101 Rs02*** **Development Advisory Committee (DAC)**	10:45-12:30 ***B101 Rs04*** **Technical Activities Committee (TAC)**		
	12:30-13:30 Lunch break				
	13:30-15:00 ***B116*** **MSSCE2016 sessions and workshops**	13:30-15:00 ***B101 Rs01*** **Development meeting (DEV)**	13:30-15.00 ***B116 R49*** **TC TRM**		
	15:00-15:30 Coffee Break				
	15:30-17:00 ***B116*** **MSSCE2016 sessions and workshops**	15:30-17:00 ***B101 Rs14*** **Bureau BUR(1)**			
	18:00-19:00 **Pancake reception at the Copenhagen City Hall**				
Tuesday 23/08/2016	8:30-10:15 ***B116*** **MSSCE2016 sessions and workshops**	8:30-10.15 ***B101 Rs14*** **Bureau BUR(2)**	8:30-10:15 ***B101 Rs10-s11*** **TC 262-SCI**	8:00-10:15 ***B101 Rs12-s13*** **TC 246-TDC**	
	10:15-10:45 Coffee Break				
	10:45-12:30 ***B116*** **MSSCE2016 sessions and workshops**	10:45-12:30 ***B101 Rs14*** **Bureau BUR(2)**	10:45-12:30 ***B101 Rs10-s11*** **TC 262-SCI**	10:45-12:00 ***B101 Rs12-s13*** **TC 246-TDC**	
	12:30-13:30 Lunch break				
	13:30-15:00 ***B116*** **MSSCE2016 sessions and workshops**	13:30-15:00 ***B101 Rs14*** **Bureau BUR(2)**	13:30-15:00 ***B116 R25*** **TC ASC**		
	15:00-15:30 Coffee Break				
	15:30-17:00 ***B116*** **MSSCE2016 sessions and workshops**	15:30-17:00 ***B101 Rs14*** **Bureau BUR(2)**	15:30-17:00 ***B116 R25*** **TC ASC**		
	17:30-22:00 **Conference Dinner**				
Wednesday 24/08/2016	8:30-10:15 ***B116*** **MSSCE2016 sessions and workshops**				
	10:15-10:45 Coffee Break				
	10:45-12:30 ***B116*** **MSSCE2016 sessions and workshops**	10.45-12:30 **RILEM Technical Day** including 2 Gustavo Colonnetti Medalists lectures			
	12:30-13.30 Lunch-break				
	13:30-15:00 ***B116*** **MSSCE2016 sessions and workshops**	13:30-15:00 ***B116 Raud81*** **RILEM Technical Day**			
	15:00-15:30 Coffee Break				
	15:30-17:00 ***B116*** **MSSCE2016 sessions and workshops**	15:30-17:00 ***B116 Raud81*** **General Council (GC)**			
		17:30-20:00 **RILEM Dinner**			
Thursday 25/08/2016			8:00-10:15 ***B101 Rs04-s05*** **TC 254-CMS**	9:00-10:15 ***B101 Rs02/03*** **TC CIM**	
			10.15-10.45 Coffee break		
			10:45-12:30 ***B101 Rs04-s05*** **TC 254-CMS**	10:45-12:30 ***B101 Rs02/03*** **TC CIM**	
	12:30-22:30 Technical tour to Stevns Cliffs and Roskilde Cathedral		12:30-13:30 Lunch break		12:30-15:00 ***B101 Rs07-s08*** **TC 258-AAA**
			13:30-15:00 ***B101 Rs04-s05*** **TC 254-CMS**	13:30-15:00 ***B101 Rs02/03*** **TC CIM**	
			15:00-15:30 Coffee Break		
			15:30-17:30 ***B101 Rs04-s05*** **TC 254-CMS**	15:30-16:00 ***B101 Rs02/03*** **TC CIM**	15:30-17:30 ***B101 Rs07-s08*** **TC 258-AAA**
Friday 26/08/2016			9:00-15:00 ***B101 Rs01- s07-s08*** **TC 258-AAA**		
Saturday 27/08/2016					
Sunday 28/08/2016					
Monday 29/08/2016					